

NEW NETWORKING

DEPARTMENT



A Micro

Editor's Corner

By B. R. Ross

Fasten your seatbelts, Mac*fans. You're about to enter the Microsoft Zone.

Earlier this week I witnessed a demo of Microsoft's products that left me feeling as enlightened as the day I first set my eyes on a Macintosh.

Here's a company with a reputation for singularly superior products. But what they showed me pushed the envelope of software productivity:

A complete line of products for the Mac that all work together.

The significance of which hit me like a ton of bricks when I saw them in action.

For instance, I saw a chart in your very favorite spreadsheet and mine, Microsoft Excel, updated from within Microsoft

Word 4.0 using just a few keystrokes. And then pasted into PowerPoint* for an incredible looking presentation.

And with just as little effort, the evercapable Microsoft Word 4.0 was merged with Microsoft's database application, File, for a mass mailing.

As if that wasn't enough, I saw their versatile integrated program Works share files with Microsoft Excel and Word.

What really blew me away is Micro-

Mile is what you can send and receive into

soft Mail. You can send and receive information between members in your workgroup even if they're on a PC. Nice.

But the real beauty is that you can access Microsoft Mail directly from the File menu when you're in Microsoft Word 4.0. No other company can offer that kind of integration. Or this kind:

A product line that all works together.

With other applications on the Mac. And even with such PC standards like Lotus* 1-2-3*, Microsoft Word 5.0 and WordPerfect*.

What's more, every product is supported by on-line help and a comprehensive manual. Or you can call one number for unlimited technical support.

Obviously, I'm impressed. So much so, that I've asked Microsoft to send copies of their Macintosh product line brochure in time for our next meeting. If you can't make it, you can always get a free copy by calling (800) 541-1261, Dept. 192.

Fellow Macphiles, man your Macs. Because we're entering a new age of compatibility—or at least Microsoft is.

And I don't know about you, but I plan on going along for the ride.

WEST SIDE USERS GROUP

Here's a company with a

reputation for singularly

superior products. But

what they showed me

pushed the envelope of

software productivity: A

complete line of products

that all work together.

soft user.







MICROSOFT SWEEPS THE NATION!



ER GROUP
MEETING
NED 6:00 PM
NED CUSTOMIZING
RE: MS EXCEL





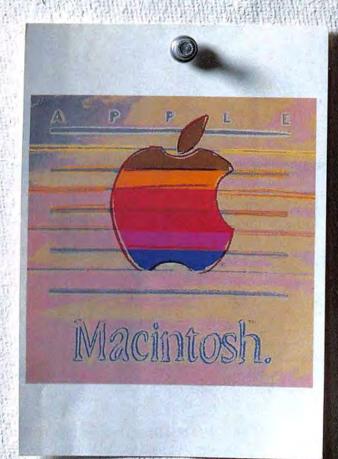




9) •))-

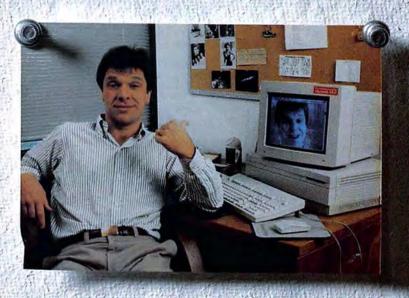
> It takes a certain kind of person to be a Macintosh enthusiast.











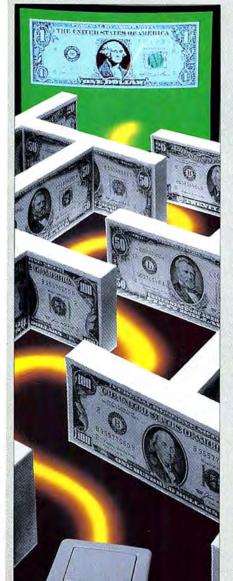




MacUser APRIL 1989 Volume 5 Number 4

C O N T

COVER STORIES



Accounting for Taste

by Ken Landis

Four leading accounting packages are audited for features, support, and performance. Whether your business is large or small, there's accounting software that fits your books.

Mac Tax Force

by Scott Beamer

Death and taxes: This article could make at least one of them a lot less painful for you. Find out what you should know

about tax software before the IRS does.

Stocks, Bonds, Futures & Mac 108

by Ken Landis

You can't tell the players without a program, but which program? Before you make your investment, check out our analysis of the competition.

When Your Money Matters

by Steven Bobker

Andrew Tobias has helped a lot of people keep track of their money. Now he's helping them do it with a Mac. Find out how an MS-DOS standard works even harder for you in its Macintosh incarnation.

GRAPHICS

88

98

Canvas Stretches

132

Art Art

Has MacDraw II met its match? The newest from Deneba Software sets sail with a boatload of features at a very competitive price.

MACUSER LABS

Fitted Sheets

149

by Clay Andres and the MacUser Labs Staff

Seven of the most versatile and powerful spreadsheets ever devised go cell to cell in a MacUser Labs roundup. If you thought Excel was in a one-horse race, you might want to recalculate.

BRIDGES

120

edited by Henry Bortman

226

How to get there from here. A new department addresses connectivity and networking, operating systems, workstations, and human interface issues.

Trouble Shots

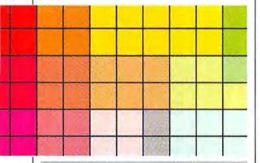
229

by Kurt VanderSluis
The ghost in the machine.

179 Between the Lines edited by Aileen Abernathy The latest news, plus reviews of FontSizer, Interleaf Publisher 3.5, and DTP Advisor.

189 **Graphic Examples**

by Salvatore Parascandolo Importing graphics into different applications is definitely not a WYSIWYG experience. Here's some importin' info to help you get what you expect, on-screen and on paper.



HYPERSPACE NewsLinks

edited by Laura Johnson

The BBC's new EcoDisc takes a slice of the sceptered isle and turns it into a brilliant new HyperCard stack, a reader presents a convenient Message Box handler, and we turn our sights to Focal Point II.

Card Tricks 211

by Michael Swaine Read before you write.

217 Flash Cards

by Laura Johnson and Victoria Juarez

Polyglots will be plenty pleased with this month's collection of foreignlanguage reference stacks.

The Editor's Desktop by Frederic E. Davis Too wild and crazy, guys?

33 The Macintosh Analyst by William F. Zachmann Separate but equal.

Control Panel 71 by Louise Kohl

The shroud of Turing.

Growing pains.

And miles to go.

205

75 Mainstream Mac by Jim Seymour

79 Pinstripe Mac by Robert R. Wiggins

302 The Devil's Advocate by John C. Dvorak



DEPARTMENTS 20 Letters

from the Mac community Readers like the hike, plead for the ImageWriter LQ, and generally sound off.

DEPARTMENTS New on the Menu

edited by Russell Ito

Latest industry updates, News Line,



Quick Clicks

GraphistPaint II, WriteMove, Graphic Notes Music Publisher, MacBottom HD-70 Hard Disk, RoundUp, and QuickLetter.

Tip Sheet

199

30

compiled by Gregory Wasson Learn how to lock out viruses, swap Wordy paragraphs, and shrink your screen.

MiniFinders

244

Program.updates and hundreds of capsule reviews to help you pick and choose.

291 Coming Soon

296 Scrapbook

edited by Kristi Coale

April is the coolest month, and Scrapbook unfolds some startling new departments, memoranda, and fustian mummery. Plus, directly following this month's MacUser Labs report, look for an explosive special report.

Advertiser Index 292

Publisher Martin Mazner Associate Publisher Jeffrey Miller ZIFF-DAVIS PUBLISHING COMPANY William Lohse Group Vice President
J. Scott Briggs
Executive Vice President
Steven C. Kahler Senior Vice President, Marketing Paul H. Chook Vice President, Operations **Baird Davis** Vice President, Production Roger Herrmann Vice President, Controller John Vlachos Vice President, Creative Services, Herbert Stern Vice President, Research Marian O, White Vice President, Classified Advertising Alicia Marie Ivans Vice President, Circulation Bert Lacy Vice President, Circulation Services James Ramaley Subscription Director Paul Stafford Single-Copy Sales Director Robert Woltersdorf Vice President, Marketing Services Ann Pollak Adelman Vice President, Development Seth R. Alpert Director of Planning Gary A. Gustafson Production Director Walter J. Terlecki

ZIFF COMMUNICATIONS COMPANY Chairman William B. Ziff, Jr. Chairman William B. Zir, Jr.
Vice Chairman Philip B. Korsant
President Kenneth H. Koppel
Senior Vice President Philip Sine
Senior Vice President Hugh Tietjen
Vice Presidents William Phillips,
J. Malcolm Morris, Steven C. Feinman Secretary Bertram A. Abrams

If you want to subscribe to MacUser, if you have a question or complaint about your subscription, or if you're moving, call or write: MacUser, P.O. Box 56986, Boulder, CO 80321-6986; (303) 447-9330. New subscriptions and address changes take 6 - 8 weeks. For back issues (subject to availability), send \$6.00 per issue, \$7.00 outside US. to: Ziff-Davis Publishing Co., P.O. Box 5999, Cherry Hill, NJ 08034; Attn: F. Hunter, (609) 354-4975. MacUser (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Co., a division of Ziff Communications Co., One Park Ave., New York, NY 10016. Editorial Offices: 950 Tower Lane, 18th floor, Foster City, CA 94404. Telephone: (415) 378-5600. U.S. subscription rates are \$27 for 12 issues, \$45 for 24 issues, and \$62 for 36 issues. Add \$18 per year to the U.S. rates for surface mail. Single-copy price is \$3.95 (Canada \$4.95). POSTMASTER: Send address changes to MacUser, P.O. Box 56986, Boulder, CO 80321-6986. Second 56986, Boulder, CO 80321-6986. Second class postage paid at New York, NY 10016 and at additional mailing offices. Entire contents copyright © 1989 Ziff-Davis Publishing Company, a division of Ziff Communications Company. All rights reserved; reproduction in whole or in nart without remission is reprisited. in part without permission is prohibited. MacUser is a registered trademark of Ziff Communications Company. The following are trademarks of Ziff Communications Company: Mainstream Mac, Pinstripe Mac, Quick Clicks, MacUser Labs, The Open Window, The Devil's Advocate, The Help Folder, Control Panel, Network Shop, Bridges, Scrapbook, The Macintosh Analyst, MiniFinders.

MacUser

Editor-in-Chief Frederic E. Davis Executive Editor Louise Kohl Managing Editor Nancy Groth
Senior Editor/Features John Anderson
Senior Editor/Departments Jon Zilber
Features Editor Michael Miley
Senior Technical Writer James Finn
Associate Editor Gil Davis Associate Editor/Reviews Russell Ito Senior Staff Writer Salvatore Parascandolo Chief Copy Editor James S. Bradbury

Chief Copy Editor James S. Bradbury
Senior Copy Editor Claire Hamilton
Assistant Editors Kristi Coale, Laura Johnson
Editorial Administrator Shirley French
Reader Support Victoria Juarez
Contributing Editors Tony Bove, Dennis Brothers, Chris Espinosa,
Paul D. Lehrman, Carlos Domingo Martinez, Dave Peltz,
Cheryl Rhodes, Daniel Rosenbaum, Jim Seymour, Ezra Shapiro,
Michael Swaine, Greg Wasson, William Zachmann
Contributing Business Editor Robert R. Wiggins
Contributing Anti-Editor John C. Dvorak
Foreign Correspondent Dan Cockran

Foreign Correspondent Dan Cochran
Assistant to the Editor-in-Chief Rosemary Neece

TECHNOLOGY

Executive Editor/Technology Jeffrey S. Young Technical Director Chip Carman MacUser Labs Director Andrew Eisner Labs Editor Aileen Abernathy Senior Technical Writer Henry Bortman Technical Editor John Rizzo Associate Project Leader Kevin Countryman Software Engineer Stephan Somogyi Lab Administrator Michael Sanchez Network Administrator John Halbig Editorial Assistant Michele Stokol

DESIGN & PRODUCTION Design Director Peter A. Tucker Art Director Lisa Orsini Associate Art Director Diane Dempsey Art Assistant Peter A. Gould Technical Art Director Michael Yapp Technical Art Assistant Mark W. Sweeney Production Director Carlos Lugo Production Manager Brenda Falco Composition Supervisor Rencé Johnson

CIRCULATION SERVICES Circulation Managers Charles Mast, Melinda Kendall Customer Service Kimberly Armstrong

ADVERTISING

National Advertising/Sales Director Lynn Backus (415) 378-6976 Eastern Advertising Director Suzanne M. Zellner (617) 375-4681 Director of National Accounts Hjordis Fammestad (415) 378-5603 National Account Manager Kathleen F. Lyman (415) 378-5612 National Telemarketing Manager Chris M. Tice (213) 387-2100 Mid-California District Manager Jeannine Barnard (415) 378-5674 Mid-California District Sales Representative Keith Newman (415) 378-5628 Northwest District Manager Leslie Hutchison (415) 378-5605 Northwest Telemarketing Manager Mary E. Skipwith (415) 378-5659 Southwest District Manager Roy J. Kops (213) 387-2100 uthwest Telemarketing Manager Carolyn A. Mueller (415) 378-5635 Northeast District Manager Gina Ciampa (617) 375-4680
Northeast District Sales Representative Michele Lipstein (617) 375-4683
Northeast Telemarketing Manager Allison Gray (415) 378-5657
Southeast/Mid-Atlantic District Manager William Corsini (212) 503-5416 Southeast/Mid-Atlantic Sales Representative Angelo M. Turco, Jr. (415) 378-5658 Southeast/Mid-Atlantic Telemarketing Manager Ellyn Kozlowski (415) 378-5664 Midwest District Manager Arthur Kossack (312)346-2600 Midwest Telemarketing Manager Ariane Casey (415) 378-5622 National Advertising Coordinator Joyce Schroeder (415) 378-5606 Classified Advertising Director Kathryn Cumberlander (212) 503-5115
Group Director of Marketing William R. Delancy (415) 378-5640
Director of Marketing Susan W. Lee-Merrow (415) 378-5624
Marketing Services Coordinator Dori Harshman (415) 378-5604 Assistant to the Publisher Donna Candelori (415) 378-5602

Business Manager Kellie Cooper Founding Publisher Felix Dennis

HOW TO REACH US

PRODUCT ANNOUNCEMENTS AND UPDATES

MacUser is always looking for new and unusual products for our New on the Menu, News Line!, Quick Clicks, and Scrapbook sections, as well as for feature coverage. If you've got a product that you'd like to tell us about - whether it's new or an upgrade send your letters and/or press releases to: Michele Stokol, Editorial Assistant, MacUser Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404.

TECHNICAL DIFFICULTIES AND HELP Although we can't offer any telephone assistance, MacUser welcomes your technical questions. If you've got a Mac question or problem, send it to Chris Espinosa, The Help Folder, c/o MacUser Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. Chris works for Apple, and if he can't give you an answer himself, he'll find someone who can. Because of the volume of mail we receive, we can't answer all of your questions so we also recommend that you take advantage of your local user groups. You can find the one nearest you by calling Apple toll-free at: (800) 538-9696, ext. 500.

TIPS, HINTS, AND PROGRAMS We love to get tips and hints (on disk, please) from our readers. Any tips should be sent to The Tip Sheet, c/o MacUser Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. We can't print every tip, but we try our best to pick the most interesting and representative ones for publication. We're also interested in hearing from any programmers who are interested in contributing to our utilities disk series or labs benchmark disk series. If interested, contact Michele Stokol,

WRITING FOR MACUSER

at the same address.

If you have an idea for an article you'd like to write, we'd like to read it. Send a query letter with samples of your writing (published if possible) and some information about your background to Louise Kohl, Executive Editor, MacUser Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. No calls please. Since we rarely buy unsolicited manuscripts, save yourself some work, and don't send us a completed article without writing first. Please allow 4-6 weeks for a reply.

PERMISSIONS AND REPRINTS

Material in this publication may not be reproduced in any form without permission. Please send permission requests to Jean Lamensdorf, Licensing Director, and reprint requests to Jennifer Locke. Ziff-Davis Publishing, a division of Ziff Communications Company, One Park Ave., New York, NY 10016.

COMPLAINTS ABOUT ADVERTISERS MacUser's editors are not responsible for the content of the advertisements in the magazine, although our publisher makes every effort to prevent fraudulent and misleading advertising from appearing in the magazine. However, if you bought a product advertised in MacUser, are dissatisfied, and can't resolve the problem, write (do not call) Elizabeth McGinnis, Advertising Department, MacUser Magazine, 950 Tower Lane, 18th floor, Foster City, CA 94404. Include copies of relevant correspondence and please be as specific as possible.



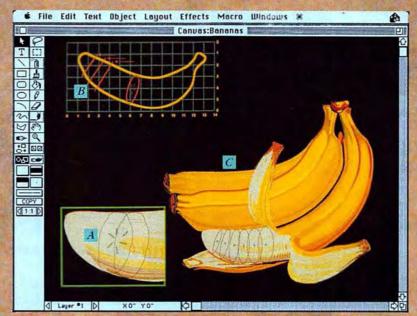
MacUser is an independent journal, not affiliated in any way with Apple Computer, Printed in the USA.

A To an architect, fine hairlines like ours are pure poetry.

B Auto-tracing built this banana from a scanned-in produce ad. In split seconds.

C Multi-point bezier curves make drawing a bunch easier. Colors are added in layers.

D Auto-resizing helped this V.P. of Sales display the fruits of his labor, graphically.



E Smooth continuous color blending inspired this art director to new heights.

> F What are mere words compared to WYSIWYG text with special effects?

G After he slipped away, we added rich Postscript gray scales to the gorilla's leftovers.



FOUR INDIVIDUALS WERE GIVEN AN HOUR WITH THE NEW CANVAS 2.0."

THREE WENT BANANAS.
ONE ATE THEM.

ow an architect, an MBA, and an art director developed instant talent in precision drawing. And a gorilla developed mild indigestion.

Meet Canvas 2.0. The new top banana. Able to help even ordinary people draw extraordinary things.

Easy enough for almost any primate to master.

Use our Bezier curves and smooth polygons to build any shape. Add or delete control points and join, split, open or close them at will.

Use Auto-Tracing to save countless hours by converting existing bit-mapped images – pictures like clip art or scanned graphics – into easily manipulated Canvas 2.0 objects.

Work across unlimited layers. View, print or save them in any combination. Draw in millions of colors, or with Postscript* gray scales and patterns.

Experience heart-stopping accuracy (64,000 DPI) and fineness of line (1/1000"). Zoom around from 3% to 3200% of original size. Draw continuously up to 9 feet square. Import and export freely, using PICT, PICT2, TIFF, MacPaint or MacDraw formats. Output to any Mac compatible printer,

typesetter, or film printer you want.

Like we said: go bananas.

But do it soon. While we're still throwing in Canvas 2.0 DA for free. It's a special desk accessory version that puts some 80% of these features right under your Apple menu.

And if all this hasn't convinced you that Canvas 2.0 is the drawing program you've been waiting for, send us \$9.95 to receive a fully featured Demo Copy. With which you can finish convincing yourself.

After all, power like this can be very apeeling.

Canvas 2.0 (including Canvas 2.0 DA)

Site licenses available Canyas 2.0 Demo Disk \$299.95 \$9.95

For more information or a demonstration of this or any of Deneba's other products, see your local dealer or call us at 1-800-6-CANVAS. In Florida, call (305) 594-6965.

3305 Northwest 74th Avenue, Miami, Florida 33122

Read only.

© 1988 Deneba Systems, Inc.

All product names mentioned are trademarks of their respective holders.







FOUR CLEAR R YOU SHOULD BUY YOU Now you can buy your A D A D II I IS A I I'T L

Now you can buy your Macintosh II with a powerful tool which will dramatically increase your daily productivity.

A Radius Display.

Radius offers displays for every type of Macintosh user and every type of Macintosh software application.

If you're involved primarily in intensive word processing and database management, we heartily recommend our FPD.

The Radius Full Page
Display shows you an entire
8½"x 11" paper-like page. With
a refresh rate of 69 Hz, you have

a virtually flicker-free display ideally suited for working with software like Microsoft Word and 4th Dimension.

If you're incorporating your word processing into page layout and design, we suggest that the Radius Two Page Display is clearly the more appropriate choice. For these reasons:

You have the same flickerfree resolution of the FPD and a full two-page horizontal layout. The ideal environment for viewing a magazine spread created in PageMaker or architectural plans drafted in MacDraft.

Or, if you're putting photographs into your Macintosh, our Radius Gray Scale Display lets you create and manipulate lifelike images in 256 shades of gray across the same expansive TPD.

Scan your photographs, then do your own retouching using Image Studio or Digital Darkroom. When you're ready, just print out on a LaserWriter





ACINTOSH II AT

or download to a Linotronic. You'll get startling results.

For professional publishers and engineering designers, the Radius Color Display offers you the latest in digital design and Trinitron color technology.

You can work with 256 brilliant colors at one time from a palette of 16.7 million.

Create color layouts with Quark XPress. Draw dynamic 3D color illustrations. Design a new circuit board. Or produce

and direct your own presentations. All in vivid, living color.

And should you need it, our Color Display is more than willing to work in gray scale.

Best of all, no matter which Radius display you do choose, you get all the classic Radius firmware features.

All of our displays offer you Tear-off Menus that can be positioned anywhere on the screen. As well as adjustable menu and menu bar type size.

Our Full Page and Two Page Displays allow you to create

bit-map screen dumps. And our Gray Scale and Color Displays allow you to save any part of your screen in a PICT file.

So before you buy your Macintosh II. call 1-800-527-1950 ext. 84 for a brochure and the name of your nearest Radius Authorized Dealer.

It's clearly the thing to do.



"Two or three years from now, the typical laser printer will be a lot like the Business LaserPrinter™: small, light, with a SCSI connector for a hard disk, and inexpensive."

That's how Publish! magazine characterized our Business LaserPrinter

THE FUTURE OF POSTSCRIPT. BY THE PRINTER THAT WILL TAKE IT THERE.

(BLP), a Postscript® printer for Macintoshes®, IBM's® and IBM clones. We'd only add that the future has arrived ahead of schedule.

Simply stated, the BLP is a better way to translate the language called Postscript into the graphics, words and numbers people use to communicate in business.

Better because the BLP lets you—oranyone else on your Apple-Talk® network—produce superior text with the aid of 39 fonts (four more than our nearest competitor).

Better because the BLP comes with expandable RAM (two megabytes expandable to four), which lets you increase print speed. And because it has a SCSI port, which lets desktop publishers extend the font storage capacity of the BLP via a hard disk.

Finally, the BLP even takes better care of your bottom line. In fact, you can buy a BLP and a dedicated hard disk for less than the price of a LaserWriter® II NT alone.

Someday, if *Publish!* magazine is right, other printers will offer all this. But if you prefer not to wait, just visit your authorized GCC Technologies dealer for a BLP demonstration. For more information, or the name of a dealer near you, phone (617)890-0880.* Please circle 154 on reader service card.



In Canada, (800) 263-1405 @ 1989 GCC Technologies, Inc. GCC Technologies, Peripherals With Vision, Business LaserPrinter and the GCC. Technologies logo are trademarks of GCC Technologies, Inc. All other product and company names are trademarks of their respective companies.



ournalism has its rewards. One of them is that I can stand on the sidelines and come up with crazy ideas about what Apple should do next. Sometimes the craziest ideas turn out to be the best—like thinking that the world is round, that the VW Bug might catch on, or that chocolate and peanut butter just might taste good together. Or that a little computer with a 9-inch screen, a mouse, and a bunch of icons could compete with "real" computers.

Zen Buddhists spend years meditating to get rid of the preconceptions and dogma that inhibit just these kinds of thoughts. Once their heads are cleared, the crazy ideas don't seem so crazy after all.

I'd like Apple to meditate on three ideas: consumer periph-

erals, Apple Windows, and an IBM-compatible development system.

sumer market.

and checking off the shows you want to record from menus or dialog boxes.

Or how about the Apple fax/phone/ modem/printer/scanner/copier combination? A fax machine already has a

printer, scanner, and modem in it. Adding AppleTalk and an intelligent controller could make it much more versatile than others, especially for computer users.

THE

Crazy? Maybe. But it's interesting to observe that Apple just joined a consortium of electronics companies working to develop high-definition TV.

WINDOWS OF OPPORTUNITY

Now here's a really wild idea. Instead of suing Microsoft and Hewlett-Packard because they made a version of Microsoft's Windows operating system that too closely resembled the Mac interface for Apple's comfort, Apple should convince Microsoft to create a special version of Windows for Apple: Apple Windows



By Frederic E. Davis

VISION

Consumer peripherals are similar to the monitors, tape drives, and CD-ROM drives Apple already sells. Except in the con-

If people want a graphical operating system for their IBMand-compatible computers that looks and feels like Apple's Mac operating system, they should buy it from Apple. And what better team than a cooperative effort between Apple and Microsoft? Apple could make major inroads in the DOS community and could get DOS users to switch to its operating system (a first step in eventually getting them to switch computers). With Apple Windows, Apple could become known as the company that made IBM's computers easy to use. What a concept!

Crazy? Maybe. But IBM — with its Presentation Manager software — has all but formally endorsed the Mac way of doing things. And remember that IBM doesn't include any operating system with its computers; that leaves the door open to Apple.

with its Presentation Manager with I

Apple could get a lot of the clone makers to bundle Apple Windows with its computers. Just imagine if PageMaker, Excel, Illustrator, and other now-popular applications that windows was a
Mac knockoff from
the start, but
Microsoft tweaked
the look of the thing
just enough to avoid
a suit.

monitors are called TVs, tape drives are known as VCRs, and CD-ROM drives sell as CD players. These are proven businesses that Apple could break into with the cachet of its logo alone. But the real value that Apple could add to consumer electronics is built-in intelligence and connectivity.

Apple has already reduced most of the Apple II to a single chip; Apple could build a line of consumer electronic products that use this chip as part of a sophisticated controller that gives the products special features, programmability, and the ability to be networked together.

The Apple TV would be a monitor with slots. You could plug in a variety of options, such as a receiver, special-effects boards, computer interfaces, or a CD-ROM drive. With the Apple-II-on-a-chip inside, you could connect a keyboard to the TV and it would become a computer. A Mac-on-a-board could fit into a slot in the TV. Start with a TV, and upgrade it to a computer.

The Apple VCR would need to include AppleTalk so it could be connected to a computer network for backing up files or programming. VCRs can be ridiculously arcane to program. But imagine just downloading TV Guide from an on-line service

WE PUT PERSONAL SCANNING WITHIN YOUR REACH.

Announcing LightningScan, the new hand-held scanner for Macintosh. From Thunderware.

Now one quick pass is all you need to scan any image up to four inches wide. With resolution settings up to 400 dots per inch, LightningScan™ makes almost any scanning job easier to handle. And because LightningScan is controlled by the software that helped make ThunderScan® famous, you have the powerful tools you need to enhance and edit your images. As for graphics compatibility, you name it: from PageMaker® and Illustrator™ to ImageStudio™ and Digital Darkroom.™

At its suggested retail price of \$549, LightningScan makes the benefits of personal scanning very easy to grasp.





started on the Mac required you to buy Apple's operating system for your IBM-or-compatible computer before they would run on it!

AM I BLUE?

Apple must address the problem of its developers spending too much time working on IBM-related products. With 2.5 million Macs out there versus more than 20 million computers that run DOS, the financial temptations of the DOS market are a clear and present danger. Even more threatening to Apple is IBM's aggressive pursuit of Macintosh developers; IBM has just formed a "desktop software" division that is specifically designed to lure Apple's developers over to the IBM camp.

Apple's best defense against the potential brain drain in the Mac community is to create a dream development system for codeveloping Mac and IBM applications. This would encourage the talented programmers (who are in limited supply) to work on Macs instead of IBM hardware.

Crazy? Steve Jobs doesn't think so. The NeXT computer's NeXT-Step software-development system will be IBM compatible (on UNIX systems). Apple Windows would fit nicely into this scenario. Apple could create a development system that would allow applications to be ported easily to DOS or UNIX machines, but the ported software would require Apple's operating system, either Apple Windows or A/UX. Apple would control the development system and operating systems, so it could ensure that its computers ran the software just a little bit better.

Apple used to be full of crazy ideas. But underneath that wild and crazy guise was a clarity and brilliance that would impress a Zen master. Let's hope that Apple Computer is still crazy after all these years.



Built to scale

If you design on a Mac II, a screen that's too small will cramp your style. That's why you should be looking into a SilverView from Sigma Designs.

At 21", this landscape monitor offers the biggest viewing area anywhere. A full 16"x 12"2 page spread including rulers and margins.

Which means you can finally work in actual size. A fact that's also made possible by SilverView's 72 dots per inch typesetting standard.

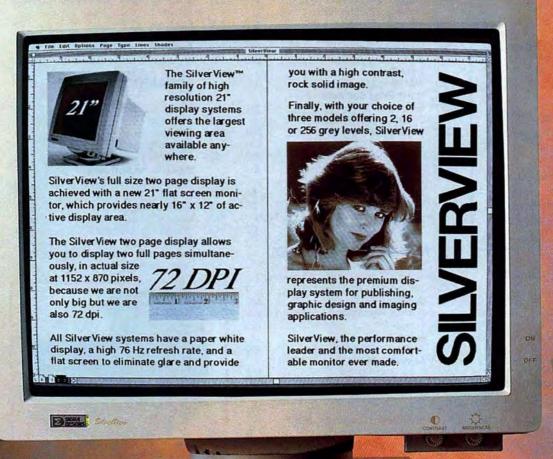
Something else should weigh in our favor. The gray scale.

Besides black and white, there are SilverView models offering 16 or all 256 different shades of gray. So what you used to leave up to the imagination can now be in all your work. Like subtle halftones or delicate shadings.

SilverView's also remarkably comfortable to work with. Its high contrast flat-screen virtually eliminates glare and distortion. And its unusually high refresh rate delivers rock solid images that never flicker.

To find out just how much better your work can look, call Sigma Designs at (415) 770-0100 today.

Then never scale down your ideas.





Sigma Designs, Inc. 46501 Landing Parkway Fremont, CA 94538

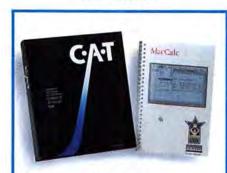
Announcing another

Hold on to your hats! Hold on to your feet! And hold on to your original packaging and documentation! Because, MacConnection is now offering 30 and 60 day money-back guarantees on selected items. If you are dissatisfied with your purchase of these products for any reason, just call for a return authorization. Look for the red stars *\footnote{\psi} which indicate participating companies.

We only carry the latest versions of products. Version numbers in our ads are current at press time. Also, all of the software we sell is not copy-protected, unless indicated otherwise by (CP), which denotes that it is copy-protected.

The four-digit number next to each product is the product's ITEM NUMBER. Please refer to this number when ordering. Thank you.

SOFTWARE



Chang Labs ... 60 day MBG

C.A.T. Special—Intergrates database, mail merge, & appointment calendar into one powerfully fast tool. Purchase C.A.T. before April 30, 1989 and receive a copy of Bravo's award-winning MacCalc spreadsheet FREE! \$229.

ACCOUNTING & FINANCE

★Aatrix Software 30 day MBG		
3976	Aatrix Payroll 3.05 99.	
4020	Aatrix TimeMinder 1.7 109.	
3958	Aatrix Payroll PLUS 3.02 159.	
7	Chang Labs 60 day MBG	
1613	Rags to Riches Ledger 3.1 120.	
1614	Rags to Riches Payables 3.1 120.	
1617	Rags to Riches Receivables 3.1 120.	
1622	Rags to Riches 3-Pak 3.1 289.	
1612	Inventory Control 2.6	
1615	Professional Billing 2.9	
1616	Professional 3-Pak	
1618	Retail Business 3-Pak	
	Dac Software	
4502	Dac-Easy Light 1.0	
	Intuit	
2425	Quicken 1.01	
*	Layered 30 day MBG	
2613	Insight OneWrite 1.0 185.	
2609	Insight Expert AP 2.02 459.	
2610	Insight Expert AR 2.10 459.	



LaCie ... 30 day MBG

Silverserver 1.11—Powerful server utility lets local and remote users share hard drives and modems. Also provides complete hard disk management, fast disk duplication and network chatter. \$89.

ask duplication and network charter. 40%
Insight Expert GL 2.02 459.
Insight Expert Inventory 2.0 459.
Insight Expert Time Billing 2.0 459.
MECA 60 day MBG
Managing Your Money 2.0 127.
Monogram
Dollars & Sense 4.1C 81.
Business Sense 1.01 279.
Nolo Press
WillMaker 3.0
North Edge Software
Timeslips III 1.1
Satori 30 day MBG
Legal Billing 1.85
Legal Billing II 2.56 539.
Components GL 1.0
Project Billing 1.54 409.
SoftView
TaxView Planner 2.0 64.
MacInTax 1988 65.
Survivor Software 30 day MBG
MacMoney 3.02 62.

NUMBERS & DATABASES

★ Abacus Concepts 60 day MBG		
4482	StatView SE + Graphics 1.03 229.	
4481		
	Access Technology 60 day MBG	
1346	Trapeze 2.1	
	Acius	
1010	4th Dimension 1.0.6 399.	
	Ashton-Tate	
4098	Full Impact 1.0 249.	
1322	dBASE Mac 1.0 295.	
	Borland International	
1508	Reflex Plus 1.01 189.	
,	BrainPower 60 day MBG	
1532	DataScan 1.0	
1535		
1534	MathView Professional 1.1 144.	
1537		
4066	The Analyzer Bundle (includes DataScan,	
	DesignScope, and StatView 512+) 319.	
	Bravo Technologies 30 day MBG	
1539	MacCalc 1.2D	
7	Chang Labs 60 day MBG	
1611	C.A.T. 2.0 see special 229.	

	Claris
4196	
1125	MacProject II 1.0
*	Fox Software 30 day MBG
4195	FoxBASE + /Mac 1.1 208.
4580	FoxBASE + /Runtime 1.1 158.
4844	FoxBASE +/Multi-User
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Individual Software
4720	101 Macros for Excel
	Microsoft
2866	File 2.0A
2865	
	Nolo Press
4228	For the Record 1.02 29.
	Odesta
3014	GeoQuery 1.0 199.
4211	
3013	Double Helix II 2.0R51 339.
4	Paracomp 30 day MBG
	Milo 1.0
	Preferred Publishers
4780	DAtabase 1.01
*	ProVUE 60 day MBG
	Panorama 1.0
-	Rubicon Publishing 60 day MBG
	Dinner At Eight-Encore Edition (CP) 45.
	Satori 30 day MBG
	BulkMailer 3.22 79.
3321	BulkMailer Plus 3.22 195.
	Software Discoveries
3373	Record Holder Plus 3.0 45.
	GRAPHICS & DESIGN

★Altsys ... 30 day MBG 4830 KeyMaster ... 54. 1194 FONTastic Plus 2.01 ... 54. Ashton-Tate ... 68. 1323 FullPaint 1.0SE ... 68. Broderbund Software 4065 PosterMaker Plus 2.5B ... 36. 1427 Print Shop 1,3. ... 36. 4501 Drawing Table 1.0 ... 78. 1431 VideoWorks II 2.0 ... 175. 1432 VideoWorks II Accelerator 1.1 ... 118. 4291 Clip Animations ... 36. ★ Casady & Greene ... 60 day MBG 1575 Fluent Fonts 2.0 ... 27.



effective through April 30, 1989.

MacConnection first...



Affinity Microsystems ... 60 day MBG

4835	
	Challenger Software
1610	Mac3D 2.1
1123	MacPaint II 2.0 102.
1117	MacDraw II 1.0
4815	Smart Form Designer 319.
4814	Claris CAD 639.
	Cricket Software
4346	Cricket Paint 1.0 99.
1667	Cricket Draw 1.1.1 169.
1	Deneba Software 30 day MBG
	Canvas 2.0
	DreamMaker 60 day MBG
4088	MacGallery (MacPaint format) 28.
4840	
4841	Cliptures: Business 2 95.
	Dubl-Click Software
3972	World-Class Fonts! Originals (1-2) 45.
3973	World-Class Fonts! The Stylish (3-4). 45.
3974	World-Class Fonts! The Giants (5-6), 45.
3964	WetPaint Classic Clip-Art (1-2) 45.
3965	WetPaint For Publishing (3-4) 45.
3966	WetPaint Animal Kingdom (5-6) 45.
3967	WetPaint Special Occasions (7-8) 45.
3968	WetPaint Printer's Helper (9-10) 45.
3969	WetPaint Industrial Revolution (11-12) 45.
3970	WetPaint Old Earth Almanac (13-14) 45.
3971	WetPaint Island Life (15-16) 45.
	Electronic Arts
4315	Studio/8 1.0
	Enabling Technologies 30 day MBG
1871	Pro3D 289.
72	Enzan-Hoshigumi USA
1879	MacCalligraphy 2.0 99.
	Foundation Publishing 60 day MBG
2384	Comic Strip Factory 1.6 44.
2385	Comic People
	Generic Software
4319	Generic CADD Level 1 1.0.1 57.

	Great Wave 30 day MBG
2272	
2212	Innovative Data Design
2417	MacDraft 1.2B
4707	Dreams 1.0
4101	Linguist Software
2636	
2645	
,-	Micro Illusions
4777	Photon Paint
	Miles Computing
4847	Mac the Knife Vols. 3,4, & 5 special 69.
	Olduvai Software 60 day MBG
4667	Art Clips (formerly Post-Art) 51.
	Art Fonts 1
4851	Art Fonts 2
7	Paracomp 30 day MBG
4597	Swivel 3D 1.0 249.
	Silicon Beach 60 day MBG
	Silicon Press 1.1 41.
	SuperPaint 2.0
3507	Super3D 1.0
	Digital Darkroom 1.0 157.
	Solutions, Intl 60 day MBG
3446	The Curator 1.05 79.
	SuperMac Software 60 day MBG
3380	PixelPaint 2.0
	Symmetry
4160	PictureBase 1.23-WetPaint Bundle 95.
0400	Synergy 30 day MBG
3129	KaleidaGraph 1.10 120.
	T/Maker 30 day MBG
3033	Christian Images
	r Zedcor 60 day MBG DeskPaint 2.01
3986	Deskraint2,01 69.
PU	BLISHING & PRESENTATIONS

PUBLISHING & PRESENTATIONS

	Adobe Systems	
1138	The Collector's Edition	9.



Zedcor ... 60 day MBG

4816	Patterns & Textures \$149.
1142	Newsletters/Publishing Pack 1 255.
4565	Forms and Schedules Pack 2 309.
4566	Presentations Pack 3 309.
1137	Adobe Illustrator '88 1.6 309.
	MacConnection carries the entire Adobe Type Library (volumes 1-82). Listed below are Adobe's newest typefaces at press time.
4817	70 Century Expanded 95.
4818	71 Serifa
4819	72 Caslon Open Face 63.
4820	73 Frutiger 245.



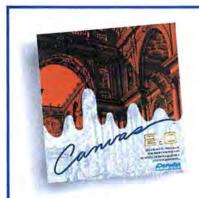
Lundeen & Associates ... 60 day MBG Make Works more powerful. Spell adds spell checking, hyphenation, & glossary. Command allows built-in macros & macro recorder. WorksPlus Spell 2.0. ...\$46. WorksPlus Command 2.0. ...57.

4821	74 Centennial 245.
4822	75 Stemple Garamond 125.
4823	76 Weiss
4824	77 Garamond 3 125.
4825	78 Universal News Com/Greek, 95.
4826	79 Avenir 1 182.
4827	80 Avenir 2
4828	81 Bauhaus 125.
4829	82 Antique Olive 125.
	Aldus
1330	Freehand 2.0
4751	Persuasion 1.0
1331	
,	Altsys 30 day MBG
1195	Fontographer 2.4.1 (CP) 239.
,	BrainPower 60 day MBG
3960	ArchiText 1.03 179.
	Broderbund
4465	DTP Advisor 1.0 47.
7	Casady & Greene 60 day MBG
	MacConnection carries the entire
	collection of Fluent Laser Fonts each 46.
	Concording the Laser Forms. Coder 40.
4839	Vivid Impressions 69.
4838	Ouil Pack (Vol. 8 & 20) 105



MacConnection

30 and 60 day Money



Deneba ... 30 day MBG

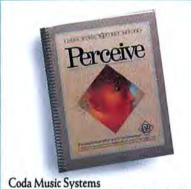
Canvas 2.0—Includes continuous Bezier curves, auto tracing, high precision, 16.7 million colors, hairlines, gray scales, layers, and more . . \$159.

4836	Headline Pack (Vol. 10-12) 145.
4837	Modern Pack (Vol. 7, 14-18) 195.
4834	Distinctive Pack (Vol. 8, 19-22) 195.
4833	Classic Pack (Vol. 3-6, & 13) 195.
	Cricket Software
1668	Cricket Graph 1.3
1670	Cricket Presents 2.0 289.
	Letraset
2621	Ready, Set, Go! 4 4.5 275.
2619	Image Studio 1.5 275.
4709	LetraStudio 1.0 289.
	Microsoft
2878	PowerPoint 2.01 255.
	Postcraft International
3157	Laser FX 1.6
	Quark
4621	QuarkStyle 1.0 199.
3230	Quark XPress 2.0 499.
	Springboard
3530	Certificate Maker 2.0
4497	Top Honors
4500	Springboard Publisher 1.0 109.
	SoftView
3981	FormSet Business Forms Edition 1.1 55.
	3G Graphics
3942	Images with Impact!: Graph & Sym 1 59.
4583	Images with Impact!: Business 1 69.
,	T/Maker 30 day MBG
3635	EPS Illustrations

PROGRAMMING & HYPERMEDIA

	Borland International	
1511	Turbo Pascal 1.1	68.
*	Bright Star Tech 30 day MBG	
3962	HyperAnimator 1.5 (includes Stax, a	
	MacConnection exclusive!)	79.
	Broderbund Software	
1430	VideoWorks II HyperCard Driver 1.2	60.
	DreamMaker	
4115	MacGallery (HyperCard format)	28.
	Ideaform	
2418	HyperBook Maker 1.0	31.
	Individual Software	
4719	101 Scripts & Buttons for Hypercard	37.
	Manx Software	
4069	Aztec MPW C 3.6B	99.
4075	Aztec C + SDB 3.6B	99.

	Microsoft
4471	QuickBasic 1.0
7	OWL International 30 day MBG
	Guide 2.0
	SmethersBarnes
1478	Prototyper 1.0 72.
	Softworks, Inc.
4601	Stack Cleaner 29.
	HyperTools #1 59.
4600	HyperTools #2 59.
,	Symantec 30 day MBG
	Just Enough Pascal 1.0 45.
3421	
3420	Lightspeed C 3.01
	TENpoint0
1338	Reports! 1.2 59.
4638	Focal Point II 1.0 119.
	TML Systems 30 day MBG
3549	TML Pascal II 3.0 (W/MPW 3.0) 115.
3548	Source Code Library II 1. 1 42.
	True BASIC, Inc
3587	True BASIC 2.01 59.
	Zedcor 60 day MBG
3985	ZBasic 5.0 99.



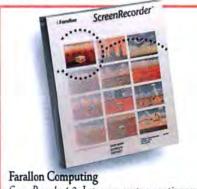
Perceive—You should hear what you've been missing! This musical ear training course combines listening, reading, and writing for

effective learning with staying power. . . . \$52.

UTILITIES

,	Affinity Microsystems 60 day MBC	
	Affinifile 1.1	
1016	Tempo II 1.0 89.	
7	Berkeley System 30 day MBG	
1541	Stepping Out II 2.01 52.	
	Beyond, Inc.	
4203	MenuFonts 2.02	
	Borland International	
1510	Sidekick 2.0	
7	Casady & Greene 60 day MBG	
2269	QuickDEX 1.4A	
,	CE Software 60 day MBG	
1727	CalendarMaker 3.0 27.	
1728	Disktop 3.0.4 27.	
4689	MockPackage Plus Utilities 4.4 27.	
1729	QuicKeys 1.1 53.	
	Dubl-Click Software	
1824	Calculator Construction Set 1.04 36.	
	Electronic Arts	
1843	Disk Tools Plus 1.01 31.	

	Farallon Computing
4684	ScreenRecorder 1.0 \$135
1	Fifth Generation 60 day MBG
4287	Pyro! 3.0 (screen saver) 15
3954	PowerStation 2.5
3955	Suitcase II 1.2 45
3953	FastBack Mac 1.3
7	FWB Software 30 day MBG
2232	Hard Disk Partition 2.0 41
4683	Hard Disk DeadBolt 1.0 53
2231	Hard Disk Util 2.03 53
	HJC Software
4803	Virex 1.2 69
	Ideaform
2419	DiskQuick 2.10 27
2420	MacLabeler Plus 3.0 42
7	Kent Marsh Ltd 30 day MBG
2591	The NightWatch 1.02 89
2592	MacSafe 1.08C
7	Lundeen & Assoc 60 day MBG
2683	WorksPlus Command 2.0 57
	MEDIAGENIC
4591	Open It! 1.0 49
7	Open It! 1.0
2732	GOfer 1.0
7	Microseeds Pub 60 day MBG
4848	INITPicker
4210	Screen Gems 1.0 47
2913	Redux 1.5
2001	Olduvai Software 60 day MBG
3031	
0475	PCPC
3175	
0.174	SoftView
3471	MacInUse 2.0
2440	Solutions, Intl 60 day MBG
3448	SmartScrap & The Clipper 2.0 46
3449	SuperGlue 1.05
2202	SuperMac Software 60 day MBG
3383	SuperSpool 5.0
2270	SuperLaserSpool 2.0
33/0	Multi-User SuperLaserSpool 2.0 199
2270	Diskfit 1.4.1
3379	Poeting 2.0
	Sentinel 2.0
4700	Noncort 1 of
4728	MacSQZI 1.05
4729	STATISTICS OF THE STATE OF THE
	-Becorder



Back Guarantees.

	Symmetry
3318	HyperDA 1.1
	William & Macias
3783	myDiskLabeler w/Color 2.9I 31.
3784	myDiskLabeler w/LaserWriter 2.9Ll 34.
	Working Software
3788	Findswell 2.0

WORD PROCESSING

*	Access Technology 60 day MBG
3959	MindWrite 2.0 95
4109	MindWriteExpress 2.0 145
	Aegis Development
1133	Word Tools 1.2
	Ashton-Tate
1324	FullWrite 1.0 269
	Claris
1129	MacWrite 5.0 102
-	Deneba Software 30 day MBG
4700	BigThesaurus (1.4 million words) 54
1767	Comment 2.0 54
1768	Coach Professional 3.0A 105
-	The state of the s



Microsoft

Word 4.0—The word processor you've been waiting for. Features complete WYSIWYG editing, enhanced tables support, two-way file compatibility & automatic repagination. \$255.

	Electronic Arts
1543	Thunder! 1.1
7	Lundeen & Assoc 60 day MBG
	WorksPlus Spell 2.0 46.
7	Microlytics 60 day MBG
	Word Finder 2.0
4870	Electronic WordFinder 220 79.
	Microsoft
2884	Works 2.0 189.
2882	Word 4.0
	Niles & Associates
4602	EndNote 1.1.1 82.
	Preferred Publishers
4781	Vantage 1.0
	Sensible Software
4692	BookEnds 1.0 54.
	Sensible Grammar 1.1D 54.



Personal Training Systems ... 60 day MBG Training Modules—The fastest, most efficient way to learn Macintosh software. Each package includes audio cassette, predefined disk files, and a command summary card. See our listing for modules and prices.

Software Discoveries 3374 Merge Write 1.0 \$34 ★ Symantec 30 day MBG 3422 More II 2.0 225 Symmetry 4504 Acta Advantage 1.0 65 ★ T/Maker 30 day MBG 3639 WriteNow 2.0 109 WordPerfect 3800 WordPerfect Mac 1.0.1 185 Working Software 3792 Spellswell 2.0G 45 4693 Quick Letter 1.0 75

MUSIC & EDUCATION

,	Ars Nova 60 day MBG
1215	Practica Musica 2.1 75
*	Bogas Productions 60 day MBG
	Studio Session 2.0
4255	Super Studio Session 2.0 75
1458	Country Disk
1459	Heavy Metal Disk
4832	Sound Effects Disk
1460	String Quartet Disk
4831	
	Bright Star Tech 30 day MBG
	Alphabet Blocks 3.01 32
	Talking Tiles 1.0 69
	Broderbund Software
4314	Type! 1.0
1423	
1422	Geometry 1.0 (CP)
4067	Calculus 1.0 (CP)
	Coda Music Systems
4367	MacDrums 1.01 (CP)
	Perceive 1.0
	Davidson
1734	Math Blaster! 1.0 (CP)

	Licetionic Arts	
3941	SmoothTalker 2.0	3.
3940	First Shapes	
3936	KidTalk	
3939	MathTalk	3.
3935		
4619	Speller Bee	5.
1846	Deluxe Music Construction Set 2.0. 6	1.
	Farallon Computing	
2199	MacRecorder 1.1 13	5.
*	Great Wave 30 day MBG	
2277	TimeMasters 1.0	2.
2276	KidsTime 1.2 2	6.
2270	American Discovery 2.1 2	7.
4334	NumberMaze 1.0 2	7.
2273	ConcertWare + 4.0	9.
2271	ConcertWare + MIDI 4.0 7	9.
	Individual Software	
4209	Typing Instructor Encore 2	6.
	Learning Company	
2670	Reader Rabbit 2.0 (CP)	3.
	Mindscape	
2748	The Perfect Score: SAT 1.0 4	6.
*	Personal Training 60 day MBG	
	Excellerate (intermediate level) 2	9.
4852	PageTutor (beginner level) 3	9.
4854	LearnWord (intermediate level) 3	9.
	Simon & Schuster 60 day MBG	
3305	Typing Tutor IV 1.2	5.
	Spinnaker	
2329	SAT Score Improvement 1.0 (CP) 5	8.
	Springboard	
3531	Early Games (CP) 2	8.
4493	Atlas Explorer (CP) 2	8.
*	Think Educational 60 day MBG	
3615	MacEdge II 1.0 (CP) 2	7.
3616	Mind Over Mac 1.4 (CP) 2	7.
*	Unicorn 30 day MBG	
3751	Animal Kingdom (CP) 2	7.
3752	Decimal Dungeon (CP)	7.



930U

MacConnection

A\$3bill

2752	Fraction Action (CD) \$27		Microsoft		
	Fraction Action (CP)	2000	Microsoft Flight Simulator (CP) \$33.		
		2000		Manage and the same	200
3/56	Math Wizard (CP) 27.	0704	Miles Computing	PIXEL	DATIN
3/54	Read-A-Rama (CP) 32.		Down Hill Racer (CP) 24.	PIXELI	THI
		2767		None and the same	
	ENTERTAINMENT	2765	Fool's Errand (CP) 32.		Page 2
			Mindscape	0.9	100
	Access Software	4083	Balance of Power 1990 (CP) 30.		
4655	World Class Leader Board Golf 28.	3987		5	
	Accolade	2743	Crossword Magic (CP)	9 0	
1184	Hardball (CP) 23.	2745	Deja Vu (CP)	2 -0-0	13.3
4484	Mean 18 (CP) 24.	4596	Deja Vu II (CP)		IA MACINTO
	Activision	2749	Shadowgate (CP) 30.	NOTICE OFFICE A	35 N
4475	Quarterstaff (CP)	2750	Trust & Betrayal: Legacy of Siboot (CP). 30.		
	Manhole	2751	Uninvited (CP) 30.		
	Zork Zero (CP)	2,0	New World Computing	SuperMac Software 6	
	Addison Worley	4490	Might and Magic (CP)	Pixel Paint 2.0—New version	include
4407	The Hobbit	4450	PBI Software	colors, color separation and	
4474		3110			
44/4		3110	PCAI	tools, and special effects lik	
4000	Broderbund Software	0114		ing and dithering make for	a sophi
	Shufflepuck Cafe (CP, air hockey) 24.	3144		paint program	
4111		4320		pante program	
4229	Where is Carmen San Diego? (CP) 27.	4321	Lunar Rescue (CP)		
1421	Ancient Art of War (CP)	4517	Road Racer (CP)	4073 Colour Billiards	
4540	Ancient Art of War at Sea (CP) 27.			4078 Game Pak (above 3	
	Bullseye			Spectrum Holoby	
1544	Ferrari Grand Prix (CP)			4001 Solitaire Royale (for	Mac II)
4074	P51 Mustang Flight Simulator (CP) 32.		- Children	4175 Solitaire Royale (for	Mac Si
7	Casady & Greene 60 day MBG		SUPER STUDIO	3464 Tetris	
	Crystal Quest 2.2C (CP) 26.		***************************************	4472 Tetris (color version,)
	Crystal Quest w/Critter Editor 2.2C 42.		208	3460 GATO	
	Discovery Software 30 day MBG		4 6 5 5 T	3461 Orbitor	
	Arkanoid		7 5	3462 PT-109	
, ,,,,,	Electronic Arts		1 O O	3459 Falcon 2.0	
1850	Reach for the Stars (CP)			Spinnaker	
	Chessmaster 2000 (CP)			2328 Sargon IV (CP)	
	Chuck Yeager Flight Simulator (CP) . 32.			SubLogic	
4500	Life & Death (CP, surgery simulation). 32.			4698 Jet (CP)	
4300			and the second second	4090 Jel (CF)	
0007	Epyx	Bos	gas Productions 60 day MBG	HARDW	ADE
	Sub Battle Simulator 29.		er Studio Session-Awarded 1988 Macworld	HARDW	AHE
4660	Sub Battle Simulator for Mac II 29.	D	1 D II A A C C C C C C C C C C C C C C C C		
	Infinity Software		der Poll Music Software of the Year. Eight	NETWORKS & COL	
	GO (CP)	voi	ce upgrade and 93 instrument files \$75.	NETWORKS & COM	IMUN
2519		Mu	sic Disks Special-Rock, Country, String, &	100	744 5
To Carolina	Micro Sports		and Effects. Price thru April 30, 1989 39.	★Abaton 30 da	
2787	MSFL Pro League Football 32.	300	illa Ellecis. Trice alla April 50, 1767 57.	4589 InterFAX Modem .	
	MicroProse		#3 = 45 V (5. v = v	★CE Software	
4697	Pirates! (CP)		Primera Software	3963 QuickMail 1.05	
	[7]	3169	Smash Hit Racquetball II 22.	★CompuServe	60 day
			Sierra On-Line	1671 Grolier's Online En	cyclope
		4161	Mother Goose (CP) 19.	1676 CompuServe Inforr	nation !
	K 6 1	3397	Leisure Suit Larry (CP) 23.	1673 CompuServe Navig	ator 2.
		3394		1674 Standard Service/N	
	La Va	3395		★DataViz 60 da	-
		3396		1823 MacLink Plus 3.0 .	
	WriteNow	3398		4842 MacLink Plus/Trans	
- 1	S CONTRACTOR OF THE STATE OF TH		Space Quest (CP) 29.	★Dove Computer .	
			Space Quest II (CP)	FastNet networking	
			★Silicon Beach 60 day MBG	*Dow Jones 30	
		3501		1789 Dow Jones Member	
		3503		1785 Desktop Express 1	
		2222		1786 Market Manager Pl	
	100	3502			
T/N	Maker 30 day MBG		World Builder	★ Farallon Computi	
	te Now 2.0-Blends simplicity with power		Stee Track Kelbayashi Allergative (CR) 24	4208 Timbuktu 2.0.1 (no	
WII	2 1 10 W 2.0 - Dictios simplicity with power	3303	Star Trek Kobayashi Alternative (CP) 24.	4866 Timbuktu Remote (UO MR

3304 Star Trek Promethian Prophecy (CP) 24.

★Softstream, Inc. ... 60 day MBG

4071 Mac•Man (w/adapter) 24. 4072 The Solitaire DA 24.

3347 Mac Wizardry (CP)

Sir-Tech

Write Now 2.0-Blends simplicity with power and performance. 2.0 has over 50 new features

including mail merge, a 100,000 word spelling

MacWrite, & RTF (Word option) \$109.

dictionary, direct import and export of Text,



MBG es PANTONE ning. Masking thing, blendisticated 8-bit \$199.

_	
4073	Colour Billiards
4078	Game Pak (above 3 titles) 75.
	Spectrum Holobyte
4001	Solitaire Royale (for Mac II) 20.
4175	Solitaire Royale (for Mac SE) 20.
3464	Tetris
4472	Tetris (color version) 24.
3460	GATO
3461	Orbitor
3462	PT-109
3459	Falcon 2.0
	Spinnaker
2328	Sargon IV (CP)
	SubLogic
4698	Jet (CP)

IICATIONS

-	Abaton 30 day MBG
4589	InterFAX Modem 329.
*	CE Software 60 day MBG
	QuickMail 1.05 159.
1	CompuServe 60 day MBG
1671	Grolier's Online Encyclopedia 19.
	CompuServe Information Service 24.
1673	CompuServe Navigator 2.02 45.
	Standard Service/Navigator Bundle 59.
*	DataViz 60 day MBG
	MacLink Plus 3.0
4842	MacLink Plus/Translators 119.
*	Dove Computer 60 day MBG
	FastNet networking products call
	Dow Jones 30 day MBG
	Dow Jones Membership Kit 24.
1785	
	Market Manager Plus 2.0 189.
	Farallon Computing 60 day MBG
4208	Timbuktu 2.0.1 (no MBG) 69.
4866	
	Timbuktu 30-Pack (no MBG) 1395.
	TrafficWatch 1.08 (no MBG) 145.
	PhoneNET-AppleTalk 120 adapter 9.
2203	
2204	PhoneNET PLUS (DB-9)
2205	PhoneNET Punch Down Block 69.



"You guys are what's wrong with America."

Dear MacConnection.

A couple of weeks ago I had the sudden urge for a new Datadesk keyboard for my Macintosh Plus. Twelve hours later, I walked into my office and the keyboard was on the receptionist's desk. Instant gratification. No time to hunger after a new goodie. No wait, no muss,

no fuss. This is *not* the spirit that built this fine country. Lincoln had to agonize through years of failure before he was elected President. Women had to wait 150 years for the right to vote. And here you are, indulging your customers' every whim in less than 24 hours. You guys are what's wrong with America.

You should be ashamed of yourselves.

Stephen Fleming Sterling, VA

MacConnection

MacConnection, 14 Mill Street, Marlow, NH 03456 1-800/622-5472 603/446-7711 FAX 603/446-7791 ©Copyright 1989 PC Connection, Inc. MacConnection is a division and trademark of PC Connection, Inc.

Just for the record, all the ads in this series feature real live MacConnection customers and the real live letters they wrote us. Really!

Overnight.

*	FWB Software 30 day MBG
4263	PocketHammer40 \$999.
4264	PocketHammer80 1499.
4871	Hammer155 2899.
4000	Hammer300
3177	HD-WSI (Apple HD-20 to SCSI) 269.
3181	MacBottom HD 21 SCSI 659.
3180	MacBottom HD 21 w/Modem 759.
3185	MacBottom HD 32 SCSI 699.
3184	MacBottom HD 32 w/Modem 829.
3189	MacBottom HD 45 SCSI 859.
3188	MacBottom HD 45 w/Modem 979.
3190	MacBottom HD 70 SCSI 999.
4658	MacBottom HD 84 SCSI 1249.
3176	MacBottom IHD 144 Meg 1495.
	DISKS
3297	Sony 31/2" DS/DD Disks 18.

ACCESSORIES

MAXELL 31/2" DS/DD Disks. 19. Verbatim 31/2" DS/DD Disks. 19.

2214

*	Avery 60 day MBG
4864	31/2" Disk Labels (Qty. 250) 13
4865	31/2" x 15/16" Address Labels (Qty. 3750) 15.
4811	81/2" x 11" Transparencies (Qty. 50) 22
*	Computer Coverup 60 day MBG
1721	800K External Drive Cover 4
1723	
1722	ImageWriter LQ Cover 8
1720	Mac Plus Cover Set
1725	Mac SE Ext. Keyboard Cover Set 10.
4657	LaserWriter II Cover 10
*	Ergotron 60 day MBG
	Mouse Cleaner 360° 15
3992	The Muzzle (covers power outlet) 62
1998	MacTilt (platinum) 68
2000	MacTilt SE 68
	MacTilt for 13" Monitor 68
	MacTilt Large 85
	Goldstein & Blair 30 day MBG
	The Macintosh Bible (2nd Edition) 21
	rI/O Design 30 day MBG
2378	MacLuggage HDware 49



LYNX Computer ... 30 day MBG
Turbo Trackball—The ultimate cursor control and pointing device. Works on any surface, and has "lock" button for single click drags
Quadlynx Turbo Trackball (Non ADB) \$65.
Turbo Trackball ADB 65.

	Agas
2540	iviaccessories A-D BOX
2546	Maccessories A-B Box 64.
2566	System Saver Mac (platinum) 64.
4070	System Saver SE 52.
2584	Printer Muffler 132 Stand 24.
2583	Printer Muffler 132 58.
2586	Printer Muffler 80 Stand 24.
2585	Printer Muffler 80 43.
2568	Maccessories SuperBase 34.
2559	Apple Security System 34.
2556	Maccessories Anti-Glare Filter 33.
2545	Universal Copy Stand
2589	Universal Printer Stand
4126	LaserWriter II Cover
2569	Mac Plus or SE Cover 9.
2577	
	line of Kensington's accessories. Partial listing below.
	MacConnection carries the entire
*	Kensington 30 day MBG
2381	MacLuggage Macinware SE 75.
2376	MacLuggage Macinware Plus 64.
2379	MacLuggage Imageware II \$49.



Dove Computer ... 60 day MBG
MacSnap 548—Bring your old Mac into the
future. Increase your Mac 512k's memory to a
full 2 Meg. Easily installed. Patented socket
technology allows better than Plus performance
without soldering\$499.

With	iout soldering
4643	Mac II Stand and Cable Kit 65
2561	
	MacConnection 60 day MBG
4623	Solid Oak Disk Case, made by New
	England craftsman (holds 90 disks) 29
	Mobius Tech 60 day MBG
	Fanny Mac QT 65
	Moustrak 60 day MBG
2694	Moustrak Pad (standard 7"x9") 8
2692	
2693	The state of the s
	Moustrak Designer Series
	(Features selected photos from the
	book, "A Day in the Life of America.")
4077	Window Washer 1 12
4006	Thunderstorm 2
4007	Old Cajun 3
4008	Vietnam Memorial 4
4009	Dance Class 5
4010	Tea Lesson 6
	Ribbons
3255	ImageWriter II Ribbon
3261	ImageWriter II 4-color Ribbon 9
3270	ImageWriter II Rainbow Six Pack 20
3260	ImageWriter LQ Black Ribbon 17



★Simon & Schuster ... 60 day MBG 4230 The Fully Powered Mac book ★Sopris Softworks ... 60 day MBG 4019 Mac SE & Ext. Keyboard Cover (navy) . 15. 4861 SE Standard Keyboard Protection Pak. 65. 4862 SE Extended Keyboard Protection Pak 75. High Trek ImageWriter II carry case. 49. 4012 4013 High Trek Mac Plus carry case 59. 4014 High Trek Mac SE & ext. kybd. case 69. *Targus ... 60 day MBG 3618 ImageWriter II Carry Case. 49. Mac Plus/SE Carry Case..... 59. 4015 Mac SE & Ext. Kybd. Carry Case . . 69.

access light.....\$175.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
 No sales tax.
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped 1st Class Mail, charged by weight.
- Upon receipt and approval, personal and company checks now clear the same day for immediate shipment of your order.
- COD max, \$1000. Cash or certified check.
- 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. All items subject to availability. Prices subject to change without notice.
- To order, call us anytime Monday through Friday 9:00 to 9:00 EST, or Saturday 9:00 to 5:30 EST. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30 EST.

SHIPPING

Continental US: Barring massive computer failures and other natural or unnatural catastrophes, all non-C.O.D. orders phoned into MacConnection by 8 PM EST will ship Airborne the same night for next day delivery, except for those within UPS Ground Zone 1 (which is also an overnight service). The total freight charge on any order placed with MacConnection is now \$3. Backorders will also ship Airborne overnight at no additional charge. Some areas require an additional day delivery.

Hawall, Alaska and Outside Continental US: Call 603/446-7711 for information.

and your order's filled.

4869	PhoneNET Connector 10-Pack. \$225.				
4868					
	PhoneNET Repeater 325.				
2206	PhoneNET StarController 1199.				
	Freesoft 60 day MBG				
2219	Red Ryder 10.3 54.				
	Haves				
2300	Smartcom II 3.0B 88.				
2307	Smartmodem 2400 449.				
7	Infosphere 30 day MBG				
2513	LaserServe 2.0 62.				
2514	MacServe 2.4				
4595	Liaison 1.0A 185.				
1000	Insignia				
4000	0-400 4 0				
4089	SoftPC 1.2 479.				
7	LaCie 30 day MBG				
4335	SilverServer 1.11 89.				
	Microsoft				
2875	Microsoft Mail 1.36 (1-4 users) 195.				
2872	Microsoft Mail 1.36 (5-10 users) 325.				
2873					
2874	Microsoft Mail 1.36 (21-32 users) 639.				
1	Nuvotech 60 day MBG				
3000					
3001	TurboNet ST (DB-9)				
	Olduvai Software 60 day MBG				
4503					
3030	FontShare 1.1				
7	Practical Peripherals 30 day MBG				
3100	1200 Baud External Modem 79.				
3102	2400 Baud External Modem 181.				
3089					
	Mac Communications Pack 229.				
	Shiva 30 day MBG				
4347					
3444	NetSerial X232 289.				
3443	NetModem V2400 479.				
	Software Ventures 30 day MBG				
	Missanhara d 30 day mbd				
3454					
3455	Microphone II 2.0 225.				
7	Solutions, Intl 60 day MBG				
4308	BackFAX (regs. Apple FAX modem). 129.				
4	Synergy 30 day MBG				
3130	VersaTerm 3.20 65.				
	Versa Terra DDO 0.0				
3131	VersaTerm-PRO 3.0 195.				
	TOPS 30 day MBG				
3723	TOPS Mac 2.1 149.				
3726	TOPS for DOS 2.1				
3724	NetPrint 2.0				
4715	InBox Connection Mac 2.2				
4/15	inbox Connection Mac 2.2 /5.				

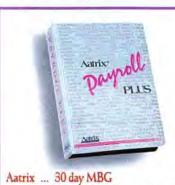


File 2.0-Intuitive database handles large numbers of records with ease. Integrates with Word to develop mailing lists and customized form letters. Predesigned templates print common forms & labels......\$129.

4714	InBox Starter Kit 2.2 \$199.
4188	TOPS Teleconnector (DIN-8) 39.
4189	TOPS Teleconnector (DB-9) 39.
4598	TOPS FlashBox
3725	TOPS Repeater
3720	TOPS Flashcard 169.
7	Traveling Software 60 day MBG
3729	LAP-LINK Mac 2.0 84.

INPUT/OUTPUT

	Abaton 30 day MBG	
1188	ProPoint ADB	39.
	Caere	
4476	OmniPage 1.0	35.
7	Cutting Edge 30 day MBG	
3988	CE 105ADB Keyboard w/QuicKeys . 14	49.
,	Datadesk 30 day MBG	
1819	MAC-101 Keyboard (beige) 14	45.
1820	MAC-101 Keyboard (platinum) 14	45.
1821	MAC-101 Keyboard (ADB) 14	45.
7	Ex Machina 30 day MBG	
4843	WristMac	49.
4043	vviistiviac	+:



Payroll Plus-Handles from the simple to the complex: prints Form 1099, allows different hourly types, unlimited number of employees, and intergrates with other accounting and spreadsheet programs...... \$159.

7	Kensington 30 day MBG
2576	New Turbo Mouse for Mac Plus 109.
	New Turbo Mouse ADB 109.
	Koala Technologies
4845	MacDirector 115.
2593	MacVision 2.0 219.
7	Kraft Systems 60 day MBG
2600	3-Button QuickStick 39.
4082	3-Button QuickStick ADB 51.
	Kurta
	IS ADB Tablet
2605	Cordless 4 Button Cursor 65.
7	LYNX Computer 30 day MBG
1211	Quadlynx Trackball (non ADB) 65.
	Turbo Trackball ADB 65.
7	Mobius Tech 60 day MBG
	MultiScreen call
7	MSC Technologies 30 day MBG
2808	A+ Mouse 65.
	A+ Mouse ADB 85.
7	Nutmeg Systems 30 day MBG
	LCD Interface 399.
2992	LCD Interface



2993	15" Monitor for Mac II special 999.
4002	19" Monitor for Mac Plus 1349.
4096	19" Monitor for Mac SE 1349.
4097	19" Monitor for Mac II 1449.
	Olduvai Software
3035	Read-lt!TS 1.06 79.
3034	Read-It! 2.0
	Orange Micro 30 day MBG
4488	Grappler Spooler 39.
3036	Grappler C/Mac/GS 79.
4487	Grappler LS 92
4076	Grappler LS
40/6	
2000	SoftStyle
3282	Printworks (Dot Matrix) 3.5 43.
3283	
3.000	Summagraphics
4298	
	Thunderware 30 day MBG
3648	ThunderScan 5.0 with PowerPort . 189.
3646	MacPlus/SE Power Accessory 29.
3645	Mac II Power Accessory 42.
	MEMORY & DRIVES

1107	1 Meg SIMMs call
	AST Research
4666	Mac 86
1229	
7	Cutting Edge 30 day MBG
3989	800k Disk Drive (platinum) 175.
3990	The Wedge XL 30 + SCSI 579.
3991	The Wedge XL 45 + SCSI 729.
7	Dove Computer 60 day MBG
1801	SCSI Interface/Port 109.
1807	MacSnap 524E
1809	MacSnap 524S 379.
1811	MacSnap 548 499.
1812	MacSnap 548S 589.
1800	MacSnap 2SE
1797	MacSnap Plus 2 439.
1803	1024 Option
1000	ACCELERATOR BOARDS
1793	MaraThon 020 MSE1 585.
1794	MaraThon 020 MSE2 (1 Meg) 979.
1795	
10.55	MaraThon 020 MSE3 (math chip) . 779.
1796	MaraThon 020 MSE4 (1 Meg/chip). 1159.
4231	MaraThon 020 MSE4x4 2195.
4663	MaraThon 030 Accelerator 32 Mhz . 999.

Letters

Dan Girard of Colonial Graphic Services in St. Paul, Minn., wrote to say why he prefers QuarkXPress to PageMaker: "Sure the additional features of QuarkXPress might take a few more hours to master, but the operator control and high-quality results are worth it." Dan's credentials and Quark's were attested to by his carefully typeset letter, which almost exactly duplicated the type specs for this department. Alas, he neglected to set his name and address in caps and small caps, so we couldn't save any money on our own typesetting bill.

Your letters are always welcome, whether caps, small caps, or no caps at all. Just send them to the Letters to the Editor, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. All letters become the property of MacUser, and we reserve the right to edit letters we print.

FYI:

M G answer to RDC of TN RE: FDs in Nov. '88. DDs are OK for Macs up to SE and most IIs. But if you want 1.6 or 1.4 MB on a Mac with IWM (or from PS/2s, BTW), you need HDs for extra \$\$.

DJR N.Y., NY

THE SHARPER IMAGEWRITER

read with some dismay your recent review of the ImageWriter LQ (January '89). As a charter LQ user (I've had mine nearly a year), I can vouch for the accuracy of some of the factual material presented. There are other LQ fonts available besides Apple's. The machine offers all sorts of paperfeed options, but my kids have no trouble with them at all. Sure it screeches, but it'll print on almost anything.

I'd like to have a LaserWriter, but a real one with PostScript, not the watered-down SC. Anyway, no one pays \$1,400 for this machine: \$1,000 is more like it. I feel I'm getting my money's worth.

SETH M. LEWIN, M.D. NEEDHAM, MASS.



9.600 TEARS

was appalled by the review of the Hayes V9600 modem (January '89). The reviewer implied that it was compatible with the CCITT V.32 standard, while it clearly is not. Hayes sells another modem, the Hayes 9600 (which is considerably more expensive) for V.32-compatible applications. The reviewer also implied that it is necessary to run Smartcom on both ends of a connection using these modems to gain the maximum speed possible. This is also very misleading, as at least two other programs, Viacom and MicroPhone II, support the hardware handshaking needed to gain optimum efficiency from these modems.

Your reviewer should also have noted that 9,600-bps modems will not communicate with any other brand of modem at speeds over 2,400, and that the file transfer speeds of 14,000 bps are due to compression of text files. Transmission of typical compressed files that you find on a BBS will be perhaps 75 percent of the speed quoted. Finally, the reviewer completely neglected an important consid-

eration to many users, which is that modems such as the V-9600 are not full-duplex, so that in interactive applications, such as typing data to a remote system, the user can often encounter an annoying delay for the modem to "turn around" when the character is echoed from the remote system.

ERIC LARSON MARCELLUS, N.Y.

PRINTER'S DEVILS

would like to comment on Dave Valiulis' "Shifting Shapes" piece in the December '88 DTP section, page 242. It pointed up differences in the screen and LaserWriter appearance of several font characters shipped with the ImageWriter LQ.

This is just as applicable to fonts shipped with the LaserWriter IISC, since they're the same as for the LQ except for the selection of sizes. The discrepancies that exist between different sizes of the supplied fonts tickled Pete Mason's (of Altsys) wry sense of humor. He and I have noticed a few more of these, such as different sizes of Geneva having different styles of the letter y. The larger sizes intended for the LQ and IISC were undoubtedly made by someone else at a later time than the sizes up to 24. I resolved these inconsistencies in my own variations of Helvetica and Times for the Image-Writer LQ and LaserWriter IISC. Called Hermes and Tribune, these fonts print slightly less bold than those shipped with the printers and will be marketed by Altsys Corp.

I wanted to point out an error in the "Symbol Sampler" illustrations that accompany Valiulis' article. In each of the five samples, your LaserWriter (PostScript) comparison sample is Helvetica. Since for three of the samples (four, if you count Geneva) that's not the font under consideration, it

The #1 SQL Database. ORACLE for Macintosh. Only \$199.

The number-one database from the numberone database company is now available for the number-one user environment. Introducing ORACLE for Macintosh. From HyperCard or your C program, ORACLE will give your Macintosh its first SQL database—for only \$199*. Better vet, you can give your Macintosh all the data from all your computers for only \$999.

MAINFRAME POWER, \$199

The ORACLE® relational database management system is 100% SQL, the industry standard data-manipulation language first introduced by Oracle in 1979. It has made Oracle Corporation the world's largest database company. Now, with ORACLE for Macintosh, the first and only SQL for Macintosh, the same database runs on every computer in your organization. Licensed especially for developers at \$199, it's the bargain of the century.

OR THE WHOLE MAINFRAME, JUST \$999.

Once you see the power of ORACLE for Macintosh, we think you'll want all the data on all the computers. ORACLE for Macintosh, with transparent access to all your computers. Over all major networks. This means your HyperCard applications will be able to access existing ORACLE PC, mini and mainframe databases



full networking and licensed for general use, is only \$999. Data on all your other computers will be as accessible as the data on your Macintosh. How?

ORACLE's SQL*Star connectivity architecture gives your HyperCard application

as well as other SQL-based DBMS products such as IBM's DB2 and SQL/DS.

Isn't it about time you merged the numberone database with the number-one user interface to get all the data in your enterprise? Call today. Or fill out and send the attached coupon.



	RA	SLE
COMPATIBI	LITY - PORTABILIT	Y - CONNECTABILITY
Call 1-8	00-ORACLE1, 6	ext. 7602 today.

Dear Oracle Macintosh Team 20 Davis Drive, Belmont, CA 94002 I want to give my Macintosh ORACLE. Enclosed is my ☐ check ☐ VISA ☐ MC ☐ AmEX credit card authorization for:

\$		 ORACLE for Macintosh developers at \$199, or the full, network version for \$999. Oracle pays shipping. 		
5	Please add appr	Please add appropriate sales tax.		
5	Total (Price vali	Total (Price valid in US only)		
Name			Title	
Company_				
Street (no I	O boxes, please)			
City	St	ate	Zip	
Telephone				
Credit Care	d Number (if applical	ole)		
Credit Care	d Expiration Date			
Signature_			Date	

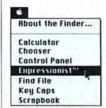
Licensed only for developers. Prices valid in US only, Requires Macintosh Plus, E or II with 2 Megabytes of RAM, 5 Megabytes hard disk space, floppy disk drive, and HyperCard I.2. Includes 30 oday installation support, ORACLE database (typer*Sql (HyperCard Interface), SQL 'Plus, Pro*C, OCI, Database Utilities, system Stackware and Example Stackware - Util networking sersion is 1999. Oppright © 1988 by Oracle Corporation. ORACLE and SQL*Plus are registered rademarks of Oracle. HyperCard and Macintosh are trademarks of

Equations Made Easy

with

Expressionist 2.0

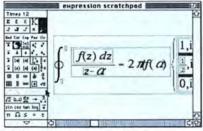
The Personal Mathematical Equation Editor



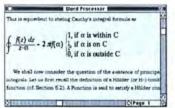
"The first version of Expressionist was wonderful; the second is nirvana."

- MacUser magazine, November 1988

1.) Select the DA ...



2.) Create your equation ...



3.) Copy & paste into your word processor!

and get

Results like this:

$$\nabla^{2} \mathbf{E} - \frac{\mu \varepsilon}{c^{2}} \frac{\partial^{2} \mathbf{E}}{\partial t^{2}} = 0$$

$$\nabla^{2} \mathbf{B} - \frac{\mu \varepsilon}{c^{2}} \frac{\partial^{2} \mathbf{B}}{\partial t^{2}} = 0$$

erfc
$$\left(\frac{|z_1 - z_2|}{\sqrt{2} \sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}} \right)$$

Send \$129.95 for the complete package, or for a brochure and more information write to: allan bonadio associates 814 Castro Street #91 San Francisco, CA 94114

Please circle 61 on reader service card.

Letters

serves to confuse the issue rather than clarify it.

DOUGLAS G. MILES ELLENSBURG, WASH.

Picky, picky. Some of the symbols are also wrong in the LaserWriter samples. For example, several symbols should have been missing from the Courier printout, which would have made it more consistent with the text. Sometime during the production process, Helvetica was inadvertently substituted for the proper fonts, resulting in the confusion. — AA

CHIPS AHOY

The article "Efficient Chips" by Salvatore Parascandolo (January '89) was superb in that it dealt only with how to operate more efficiently. I have all the hardware and software, but my personal chips need improving so the excellent tools can become better utilized.

Many users work in small environments without a "computer expert" around to help. We don't all have access to other users or user groups to exchange information and learn the simple points. I for one use the Mac as a business tool. I'm not inclined to get involved in the programming aspects. I need to be a "user expert," not a "computer expert."

Some readers may be interested in the price of Crayolas — with sharpener — or what Jobs and Woz are doing, but many couldn't care less. Please maintain some basics and give us more helpful articles written for *users*, not computer experts or gossip mongers. Douglas L. Vincent

TULSA, OKLA.

THE NEW PRICE IS RIGHT

Jim Seymour's "The Pricing Game" (January '89) wins my MacReader award for the "things I'm sick of reading about category." Last year I bought my SE. Since then, I've been doing a lot of thinking about what it cost me. I've been watching IBM's prices, not closely, just checking out the ads once in a while. Guess what I've figured out?

The Mac is not terribly expensive compared with those IBM thingies!



The real differences come after you've bought the basic machine. Want to add a hard drive to an IBM? Buy a disk controller card in addition to the drive. Want a second serial port? Buy a serial card. Want a SCSI interface? Buy a SCSI controller card. Want 1 megabyte of RAM? Buy another 512K, since only 512K comes standard in Big Blue's box. Also buy the memory card to put it on. Want a mouse? Buy it. Want a decent (well, as close as you can get) interface? Buy Microsoft Windows. Want to connect to a network? Buy a network interface card for a lot more money than an AppleTalk connector. There are a lot of hidden expenses in an IBM machine that aren't there on a Mac.

TIMOTHY ORR MERRIMACK, N.H.

VENI, VIDI, VIDEO

usic, music, music. What about video, video, video?
GUY BRADLEY
BATON ROUGE, LA.

Mac-based video products began appearing in significant numbers only late last year, but it's a rapidly expanding field. Rest assured; we'll be covering it. Stay tuned. — RI

THE OFFENDED AND THE DEFENDED

Reference your running series of letters and editorial comments concerning Deborah Mason's protest regarding adult entertainment (October '88). And, in January's issue, the note by Steve Damascus. Somebody on the editorial staff ought to tell Steve that the term sexist isn't gender specific—or maybe your editorial staff wasn't aware of that?

Now Macintosh And Wang Can Communicate And Nothing Gets Lost In The Translation

Transferring files from one system to another is somewhat pointless if you spend most of your time reformatting the data.
Which is why we introduced

MacLinkPlus for Wang. Whether you're running a Wang VS system, an OIS or a Wang PC, MacLinkPlus provides a complete solution for document transfer and file conversion.

MacLink*Plus* includes the entire collection of more than 40 translators — the key to accurate conversion of file formats such as rulers, indents, bold and plain text styles, margins, tabs, underlines, superscripts, subscripts, paragraphs, and tabular tables. If it looks a certain way on a Wang, it will look the same way on a Mac. And, of course, vice-versa. No time-wasting and difficult pre-conversion



Wang Word Processing



Microsoft Word

to ASCII or print files is necessary.

MacLink*Plus* doesn't stop there, however. It offers full Wang VS Workstation capabilities, allowing easy access to Wang word processing, data processing and electronic mail. All 32 Wang Workstation functions can be executed through familiar Macintosh menus or command keys, and you'll even be able to use the mouse on Wang displays.

Software for the Macintosh, software for the Wang (8" or

5.25"), software for the PC and a direct connect cable (you can use a Hayes or compatible modem if you prefer), is included in the MacLink Plus package; everything you need to be up and running in minutes.

So call (203) 268-0030 for your nearest DataViz dealer, because no matter which Wang system you're using, there's a MacLink*Plus* solution to connect it to the Mac.

Who says you can't have the best of both worlds.



Wang 2110 Terminal



Macintosh 2110 Terminal Emulation

DATA/IZ MACLINK Plus Wang

35 Corporate Drive Trumbull, Connecticut 06611

Please circle 189 on reader service card.





ScanMan: Turning imaginations loose everywhere.

Imagine. A fast, handheld scanner designed exclusively for the Mac."

Select one, two. hundred dpi, then scan any image up to 4.2"x 14" into your Mac in seconds.

ScanMan is a Desk Accessory that works with a Mac Plus, SE, or II. Scanned images can be resized, rotated,

three, or four

click and

flipped, and edited-pixel by pixel if you like - then transferred via the Clipboard" to virtually any application, from painting to word processing.

All for \$499, complete with SCSI interface box, software, easy instructions, and Logitech's full warranty and support.

Now just imagine the 1,001 could cheer up all ways you your publications and reports.

For your nearest dealer call:

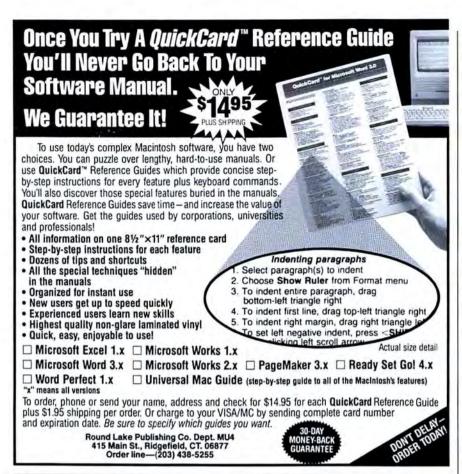
800-231-7717

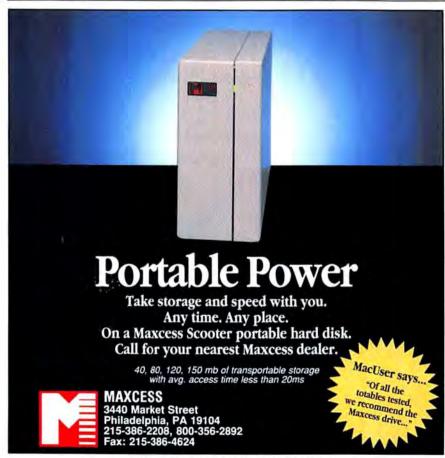
In California: (800) 552-8885 In Europe: ++41-21-869-96-56

trademarks of Apple Computer.

Mac and Clipboard are

Please circle 156 on reader service card.





Please circle 26 on reader service card.

Letters

And speaking of logic tricks — you guys would really go under if you ethically refused to print adult entertainment garbage? Why that must mean that if about 10 or 20 subscription renewals were refused because of this trash logic — if-you-have-the-money-we-print-it philosophy — you might fold, or the publisher might change editors. Why, in an otherwise decent magazine, aren't folks tired of this kind of crap!

GEORGE STEVENSON SACRAMENTO, CALIE.

Three cheers for Steve Damascus' response to Ms. Deborah Mason's letter of protest! Not everyone finds amusement in the same fashion, but that doesn't make it wrong, immoral or, least of all, sexist. If I threw verbal spitballs at everyone who got their giggles from "adult" literature or other adult amusements, my mouth would go dry. Chill out, Deb!

NANCY E. LIGOS WARMINSTER, PA.

DVORAK CRACK OF THE MONTH

What do John Dvorak and a new No. 2 pencil have in common?
A: Both are soft at one end, and neither has a point.
NELSON HAUKAP
CARROLL, IOWA

CLARIFICATIONS

Obfuscations obviated, ambiguities arbitrated, and errors eradicated.

The Price Is Right

Compugraphics' new CG 9400PS imagesetter suffered from price inflation in the January '89 DTP section. This 2,400-dpi PostScript machine, which competes with the Linotronic 300, retails for \$39,995.

Strange Answer

Dialing the telephone number we gave in the November '88 DTP section for Springboard Publisher would have resulted in hearing a strange tone generated by a fax machine. The voice telephone number is (612) 944-3915.

WHEN YOU'RE MORE PRODUCTIVE, IT SHOWS.

MORE II: PLANNING, WRITING AND DESKTOP PRESENTATIONS.

Being MORE productive means everything you plan, write, or present is MORE organized. And it shows in everything you do.
MORE II's advanced outlining makes it

easy to capture, plan, and organize ideas into

OUTLINE PROCESSING Indiagodable Advantages of MORE II

feating Sychology

Allow only represents and prosperiods of all your provide

alternative and provided and prosperiods of all your provided

attraction and provided and provided provided and forestional Willing:
Emerity pil pint to you sen't princeplus best sector it easy to re-bound on tree of pulleting tree a number of buildings rejust. Instant Presentations
 The utilizes but belong to be the time to all a long Outlines make MORE II

productivity easier. Just click the mouse on any part of

an outline and get charts

and slides, instantly.

clear, action-oriented information. Simply type in "To-Do" lists, project schedules, proposals, plans... everything. MORE II automatically creates the outline for you.

Show slides in

complete with

wowing video

effects

35mm, or present them live on-screen,



Customize presentations with MORE II's complete set of drawing tools.

THE OUTLINE MAKES THE SHOW.

Once you have an outline, your art work is done. Because with a double-click of the mouse, any outline becomes a perfectly spaced bullet or organization-type chart instantly. Complete with company logos or art pulled in from other programs. Print the charts and get overheads

MORE

company that accounts to a principle (the product love of all the product love to a principle (the product love to a love to be principle).

Manual State of the Control of the C

Write beautifully with

fast. Or turn them into 35mm slides overnight. For even more graphics, click again and get every art tool imaginable. And because of MORE II's outline, when you change the master slide, the rest change automatically. So making 1000 slides is as easy as making one.

Click on another outline, add a few paragraphs using MORE II's full-power word processing and bingo. You've got a memo. Or a

letter. Or a proposal. Add pages, pull in some charts and there's a full-scale report or a board-room quality presentation...

totally spell-checked, with text, graphics, fonts and styles to rival anything created on any

MORE II's complete word processing. other program.

Now go live. MORE II includes advanced, live-action meeting technology for slide shows (complete with video effects like dissolves, builds, wipes, and fades) on any MAC connected to virtually any projection device.



For planning, writing, and presentations, MORE II shows results. It's the only software that

helps you master all three stages in the art of persuasion. Without becoming an artist.

For MORE II product and upgrade* information, call (800) 228-4122 Ext. 747F.

Please circle 91 on reader service card.



WHEN YOU'RE MORE PRODUCTIVE, IT SHOWS™

SYMANTEC. Symantec Corporation, 10201 Torre Avenue, Cupertino, CA 95014. 408/253-9600.

*MORE owners, upgrade to MORE II max, send 889 plus \$10 for shipping handling (check or money order) along with your MORE registration mother to MORE II upgrade, Symantec Corporation, 10201 Torre Arenue, Cupertino, CA 95014 or call 415964-4440. Suggested retail price \$335, MORE and MORE II are trademarks of Symantec Corporation.

© 1989 Symantec Corporation

ERKGH



M20 20 Mb External



Economy. Mirror's great looks in a zero-footprint design that brings mass storage within anyone's budget, yet includes - free of charge as with all Mirror hard drives - Mirror's hard drive value package*. And with Mirror Technologies' return policy and one-year warranty, you can't go wrong.
'Includes Mirror Technologies' Hard Drive Value Package



M30 30 Mb External



Our most popular drive. Enough storage for most personal applications at manufacturer-direct prices. Preformatted and easy to use - just plug in and play! Super reliable, and with all the extras at factory-direct prices.

Includes Mirror Technologies' hard drive value package.



M40 & M40 + 40 Mb Externals

Your choice. Lower price or blistering speed. The "Plus" version screams along at an amazing 19ms! And our "Plus" drives carry a two-year warranty. Heavy gauge steel cases, the finest hardware, and power supplies that just won't quit.

ides Mirror Technologies' hard drive value package. M40+: Call for price.



M80 & M80 + 80 Mb Externals

Again, your choice: high speed or lower price. We'll double our usual one-year warranty on the 19ms "Plus" drive to two years. 80 Mb is enough for highly complex networking and accounting applications. Shop the price on other 80 Mb drives. Ours is less expensive, and you still get all of the Mirror extras!
"Includes Mirror Technologies' hard drive value package. M80+: Call for price.

Our numbers look as good as our products.

It's because you buy straight from the manufacturer. No commissions. No markups. Just prices up to 40% less than you'd pay in a computer store. You still get all of the extras like our hard drive value package. And friendly, intelligent people who understand the MacIntosh.



M100, M200 100 & 200 Mb Externals

Mega-memory at a micro price. And talk about speed! The M100 is fast, but the M200, at 15ms, is awesome! Fan-cooled reliability, and Mirror's conservative philosophy means you can't find a more secure storage medium. Preformatted. Just plug and play!
"Includes Mirror Technologies' hard drive value package.

M200: Call.

*Mirror Hard Drive Value Package:

· Preformatted · Embedded SCSI; NTX compatible · AC EMI/RFI filters • Rear-panel AC outlet • External SCSI address selector • SCSI cable • Whisper-quiet cooling fan • Hard Driver' formatting and diagnostic utility •
LaserSpeed * Numerous other utilities, backup utility • 10 Mb of Public-domain software stacks . 1-year warranty, two years on "Plus" drives.



RM.8 Floppy Disk Drive

We set the standards for low-cost removable storage. This little drive packs .8 Mb (800K) of data on each 31/2 disk! MacWorld says of our RM.8, "So quiet it would be unobstrusive anywhere except a library on a Friday night." Try it for 30 days, and if you don't like it, we'll take it back. You won't find a similar brand-name product for less!

Quality is always a better value. Especially if it costs less.

Lost data can put you out of business. That's why Mirror Technologies uses only the best. And why we build in those extras that mean greater data security. When integrated with rugged power supplies and whisper-quiet cooling systems in our steel chassis, you can double-click "Save" with confidence.

NUMBERS.



M60 60 Mb External



You won't find a brand-name 60 Mb drive for less. And you still get Mirror's EMI/RFI protection, heavy-duty power supply, AC convenience outlet, whisper-quiet cooling fan, rear-panel SCSI address, and other standard Mirror features. Compare. Then give us a call!

*Includes Mirror Technologies' hard drive value package.



VisionScan 200

\$597

A VisionScan scanner—an unlimited supply of art & graphics! Anything you can lay on the flatbed can be quickly and easily entered into and manipulated with your Mac at half the price of competing flatbed scanners! A BYTE reviewer wrote, "If it were my money, I'd buy the Mirror Technology VisionScan. Its price/performance ratio is unequalled".

VisionScan 300



VisionScan works as a DA so you don't have to exit the program you're using! Get the 200 dpi VisionScan 200 for excellent line art and affordable halftones, or the 300 dpi VisionScan 300 for excellent line art and excellent halftones, and we'll send you Zedcor's DeskPaint, free! Optical character recognition software available.



Internal Hard Drives: 30, 40, 80, 100, 200

\$497

Only Mirror Technologies allows you to add an internal hard disk in an SE already containing either two floppies or a floppy and a hard disk! Up to 200 additional Mb in your SE! And Mac II users can add two of our drives; up to 400Mb of internal storage, another Mirror exclusive!

*Includes Mirror Technologies' hard drive value package. 40, 80, 100, & 200 Mb; Call.

Another number you'll love. 30 days at our risk.

We know you can't get a better value anywhere. It's up to us to prove it to you. Try a Mirror product for 30 days; if you don't think it's a great value, call us, send it back, and we'll refund the price of your unit. We're confident that you will like our prices, our products and our service.



RM20 Removable Flexxy Disk Drive

\$897

Think of it as a huge floppy disk. Using media developed by Kodak and Verbatim, the flexxy disks carry a lifetime guarantee! Speed? Our RM20 is as fast as most 20 Mb hard drives! An extremely low cost per Mb for backup, for archiving, or for your primary storage medium. And we sell our RM20 for over a

You'll get better help than from a computer store salesman.

If you need to know about any product, ask its maker. At Mirror, our Mac experts have been hand-picked and trained to be able to answer your questions. Better help than you'll get from salesmen in most computer stores. If you've ever had trouble getting help before, you'll find welcome relief at our number.

hundred dollars less than the competition, complete with Hard Driver™ formatting and diagnostic utility, Symantec's LaserSpeed™ LaserWriter print spooler, and numerous other utilities, including a backup utility. External SCSI address selector, our whisperquiet cooling fan, built in AC EMI/rRFI noise filter.

You could be using a Mirror Technology drive tomorrow.

We almost always ship within 24 hours. If we don't ship within 24 hours of credit approval, we'll pay the freight! And with optional express shipping, you could be up and running by noon tomorrow. You simply can't find better products, with better service, at a better price – anywhere. Call today.

JMBER 5294

MIRROR

2644 Patton Road, Roseville, MN 55113 Phone: 612-633-4450 Fax: 612-633-3136 Hours: Mon.-Fri. 8 a.m.-6 p.m. CST

HOURS, MONT-PT. 8 & HIL-9 D.HI. CS1
MacIntosh and Macare trademarks of Apple Computer,
Inc. LaserSpeed is a trademark of Symunitee Corporation.
Verbalim is a trademark of Verbalim Corporation, a Kodak
company. Kodak is a trademark of Eastman Kodak
Company. DeskPaint is a trademark of Zedoor, Inc.
MacWorld is a publication of PCW Communications, Inc.
Byte is a publication of McGraw-Hill.





EDITED BY RUSSELL ITO



When a Stranger Calls

Wrong numbers take on a whole new dimension when it comes to modem security. Since the biggest threat to a system's security comes from unauthorized people calling in, it makes sense to add security to telecommunications hardware.

That's the idea behind Tri-Data's four new OZ Guardian 2,400- and 9,600-baud modems. With these units, each call can be screened for password-controlled access. When a remote terminal enters a password, the OZ Guardian hangs up and automatically calls back the telephone number associated with the password. It's less obnoxious than call waiting, and it's an effective way to ensure that unauthorized users don't get their calls returned.

Tri-Data offers upgrade or exchange options in case you discover that you need more power or security than you originally thought. The modems provide compatibility with all major datacommunications protocols from Bell 212A and 103J to CCITT V.22 bis and V.32.

Stand-alone models list from \$750 to \$2,275 (volume discounts are available) and are available from Tri-Data Systems, 1450 Kifer Road, Sunnyvale, CA 94086-5306; (408) 746-2900.

James Bradbury

A Scanner in the Hand

It might look like a vacuum cleaner attachment, but it's a lot more fun. LightningScan by Thunderware is a hand-held scanner for Macintosh computers that is driven by software similar to that used in the popular ThunderScan.

A Thunderware-supplied controller connects LightningScan to any Macintosh SCSI port. Using the scanner is like playing with a large mouse — just hold down the button and drag the scanner over the image to be scanned. The image is immediately displayed on the Mac screen — albeit in a 4-inch-wide strip. You can even achieve some special effects by turning the scanner as you scan. (If your hand isn't steady, you can even get special effects you don't want.)

LightningScan quickly scans graphics, photos, charts, and logos — anything reasonably flat, including wood and fabric that fits within its four-inch scanning width — at resolutions of 100, 200, 300, and 400 dpi. It supports magnification, three dithering patterns, a line art mode, and adjustable brightness. The software includes editing tools and controls for frames, rotations, and captions for output to PostScript printers. LightningScan supports TIFF, Encapsulated PostScript Format

(EPSF), PICT, and paint file formats.

LightningScan images can be imported into major desktop-publishing software, including Page-Maker, QuarkXPress, and Ready, Set,Go!, and graphics packages such as Illustrator, FreeHand, ImageStudio, and Digital Darkroom.

Billed as a "personal scanner," LightningScan is targeted for graphic designers, desktop publishers, businesses, and schools. It will be available by the time this is in print at a suggested price of \$549. Thunderware can be reached at 21 Orinda Way, Orinda, CA 94563; (415) 254-6581.

- Laura Johnson



It's not a vacuum cleaner attachment. It's LightningScan, the hand-held scanner from Thunderware.



WORMicide. Pinnacle Micro's REO-650 is a 650-megabyte read/write optical drive that just might squash all those emerging WORMs.

WORM Killer

"Look ma, no dioxin!" Killing WORMs without pesticides isn't easy, but Pinnacle Micro has come up with an answer: the REO-650, a 650-megabyte, removable media, read/write optical drive that just may be a true WORM killer.

The REO-650 uses magnetooptical technology to achieve its read/write capability, and the company boasts a reliability rate of up to 1 million individual file erase/rewrites.

This SCSI drive uses a 5.25-

inch, double-sided cartridge and has an average seek time of 90 milliseconds. It boasts a burst transfer rate of 1.2 megabytes per second.

All this WORMicide power doesn't come cheap, but at \$5,995 for the drive and \$230 each for the cartridges, it's not bad. To find out more, contact Pinnacle Micro, 15265 Alton Parkway, Irvine, CA 92718; (800) 553-7070 or (714) 727-3300 (in California).

- Russell Ito

My Kingdom for a Case

No, that wasn't Perry Mason; it was a Mac traveler — maybe you — looking for something to transport a Mac Plus or SE in. For those times when a soft case just isn't good enough, Zero Halliburton has come up with an aluminum alloy case that's the perfect complement to Guy Kawasaki's briefcase.

The Zero Halliburton Macintosh case comes with a customized foam insert for the Plus or SE, with room for a standard or extended keyboard, mouse, cables, and disks. It has a combination lock, weighs 12.5 pounds, and measures 13-x-18-x-21.5 inches. And unlike soft cases, it's made to be checked in and tossed around by the nearest gorilla disguised as



A hard case. Zero Halliburton's Macintosh case is an aluminum alloy shell for your Mac and the perfect complement to the Guy Kawasaki line of briefcases.

a baggage handler.

The case has a suggested list price of \$299.95 and is available from Zero Halliburton, 12224 Montague St., Pacoima, CA 91331, Attn.: Macintosh Dept.; (818) 897-7777

- Russell Ito

NEWS L I N E !

EDITED BY GIL DAVIS

Mac Prices Swing Low

CUPERTINO, CALIF. — Only four months after raising prices in September '88, Apple reduced the list prices of many of its high-end Macintosh SE and II configurations. For example, a Mac II with a 40-megabyte internal drive, 4 megabytes of memory, and an extended keyboard cost \$7,498 last August, \$8,298 in September, and \$7,598 in January.

Apple Shuffles Personnel

CUPERTINO, CALIF. - Hundreds of Apple marketing employees attended a January "job fair" to reapply for jobs within the company. Apple USA president Allan Loren reportedly wanted to place workers in new positions more suitable to their interests and capabilities. Two senior executives announced their departures before this latest reorganization. Charles Bosenberg, former senior vice president of sales, went to MIPS Computers, and John Scull, former head of Apple's multimedia project, left to become president of MacroMind, Inc. Another top executive, Deborah Coleman, former chief financial officer, is taking a five-month leave of absence. Citing health and personal considerations, Ms. Coleman asked to be relieved of some responsibilities and will return as vice president for tax and treasury. Coleman headed the effort to produce Macs on a highly automated assembly line.

New DEC Platform Puts A/UX at RISC

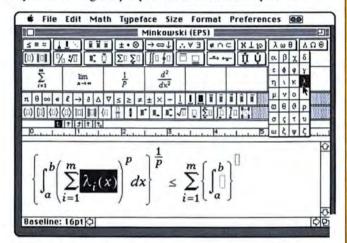
MAYNARD, MASS. — Apple's A/UX workstation is getting competition from DEC's new \$11,900 DEC-station 3100. The RISC-based UNIX computer operates at 12 million instructions per second, about 12 times faster than a Mac IIx. However, release 1.1 of A/UX, announced at the January Macworld Expo, added a number of enhancements to the Apple product, including compatibility with the X Window system and support for the Toolbox functions needed to support many of the leading software packages from companies like Microsoft, Claris, ACIUS, and VersaCad.

Thin Bits ... Support for Aba Software's Draw It Again, Sam and GraphistPaint II is in limbo following announcements that the company was closing its doors. Aba executives were reportedly considering purchasing distribution rights for the products ... Delays in shipping Wingz, the long-awaited graphical spreadsheet from Informix, were cited as a contributing factor in the layoffs of 15 percent of Informix's work force. Wingz is now expected to ship by March 31; a shrink-wrapped prerelease version was distributed at the January Macworld Expo ... MacroMind's VideoWorks Professional is now known as MacroMind Director ... Apple has joined 15 other electronics companies in evaluating the formation of a partnership to create high-definition television for the U.S. . . .

MathType 2.0

Equations for Word Processing

If you need an easy way to create technical reports, slides, class notes, research papers, or even entire books, then MathType is the tool you've been looking for. It's an intelligent equation editor for the Apple Macintosh or for IBM PCs and compatibles that lets you build up complex equations using simple point-and-click techniques ...



Import the finished equation into your word-processing document, and get publication-quality results like this ...

$$\left\{ \int_{a}^{b} \left(\sum_{i=1}^{m} \lambda_{i}(x) \right)^{p} dx \right\}^{\frac{1}{p}} \leq \sum_{i=1}^{m} \left\{ \int_{a}^{b} \left[\lambda_{i}(x) \right]^{p} dx \right\}^{\frac{1}{p}}$$

MathType 2.0 has all the highly-acclaimed features of earlier versions, and some important new ones, too:

- · Automatically applies the rules of mathematical typesetting
- · Encapsulated PostScript (EPS), Pict, and TIFF output
- · Optional TFX, Mathematica, Excel, Lotus 1-2-3 interfaces
- · User-defined palettes and expression macros
- · Runs as a DA on the Mac, under MS Windows on the PC
- Fractional type sizes and positioning to 1/32nd of a point
- · On-line context-sensitive Help system
- · Fast keyboard access to all symbols, templates, and expressions

All this, and much more, and the price is still only \$149. Call or write for a FREE brochure and working demo disk.



6475-B East Pacific Coast Highway, Suite 392 Long Beach, CA 90803 • (213)433-0685

Please circle 53 on reader service card.

NEWS L I N E !

Speaking Out: MACdex versus Comdex

What if they gave a MACdex and nobody came? The first MACdex will be held concurrently — but separately — with this April's Comdex show. Comdex organizers said they created MACdex at the request of exhibitors, although Apple Computer apparently was not among the requestors. We asked several potential exhibitors and industry leaders for their opinions.

"We won't participate in this spring's MACdex because our show schedule has been planned for quite awhile. We're in Comdex because it's a multivendor exhibit where we can show people how our computers are doing a better and better job of connecting to other computers. That message is important to us and to our users."

- Patty Tulloch, spokesperson for Apple Computer

"When users think of personal computers, they think of a number of brand names, so they naturally want to see computers working together. So I don't see where this segmentation meets the perceptions and needs of customers. Personally, I'm more interested in a show where users get to see the total solution rather than an exhibition that's limited to just the Macintosh. We're not planning to exhibit at MACdex, but we'll still have a booth at Comdex."

- Gordon Eubanks, Jr., president of Symantec Corp.

"MACdex seems like a nice idea but it's a little too late. WordPerfect Corporation is already committed to three Macworld Expos and two Comdex shows every year. Right now, attending those shows is sufficient for us because we get a lot of attention for our Mac products. I don't think we'd meet anyone at a MACdex that we wouldn't meet at Comdex. That may change as MACdex develops and becomes a more important show; that could well depend on whether Apple participates or not."

 Roger Bell, director of Macintosh products marketing for WordPerfect Corporation

"The best way to display the Macintosh at Comdex is to have the Apple booth in the center of the floor where anyone can wander in and learn about the Mac. We already have two big Macintosh shows plus Seybold; that's enough exhibits with a Mac focus."

- Heidi Roizen, president of T/Maker Company

"The addition of MACdex and a few more shows to the already busy convention schedule is going to overload the marketplace — there's just not enough demand for that many shows. I also don't think segregating the Mac to a separate location is good for Comdex because the Mac is the leading edge in the IBM-dominated personal computer world, so it deserves to be among the rest of the computers. Also, when the Mac is part of Comdex, it brings some market credibility to the Macintosh and makes it look like it's a growing part of the business market."

Mike Bailey, president of Apple Professional Exchange

he Interface Group's launch of MACdex in Chicago on April 10–13 alongside the Comdex/Spring '89 show marks what is likely to be a new phase in the industry's perception of Apple and the Macintosh. Paradoxically, MACdex represents the Macintosh's increasing role in the mainstream of corporate and personal computing, even as it reaffirms the Mac's uniqueness.

In establishing a separate show aimed at Macintosh dealers and other resellers, the Interface Group is explicitly recognizing the size and strength of the market for the Mac and related products. At the same time, however, MACdex represents the assimilation of what an early brochure called "The Mac Mystique" into the mainstream of business.

Until now, Macintosh shows have tended to be in-groupie

Comdex Participation

1,800
1,600
1,400
1,200
1,000
800
600
400
200
79 '80 '81 '82 '83 '84 '85 '86 '87 '88

gatherings of the Macintosh faithful. They've sometimes had the aura of revival meetings, reaffirming During Apple's period of trouble and transition in 1985, however, it pulled back from Comdex, disappearing from the floor enMACINTOS I

tirely for a time. Apple returned with a modest presence in 1987 in the form of a room for Mac software vendors to display their wares. Still, as Comdex set records for size and attendance at its Fall '88 show, Apple and the Macintosh remained seriously underrepresented in what had become the industry's most important show.

Apple is returning to Comdex in a bigger way in 1989. But even as Mohammed approaches the mountain, the mountain is moving toward Mohammed in the form of MACdex. Recognizing the importance and growing maturity of the Macintosh and its markets and, even more important, of the need for a more businesslike forum for the Mac, the Interface Group has made a big investment in a Comdex-like show devoted to the Mac, complete with an impressive conference program.

Ironically, the Interface Group's enthusiasm for the Mac so

Separate but Equal

the faith of the true believers and inviting the heathen to conversion. What's more, they have tended to be aimed at individual users as much as (if

not more than) industry professionals. Lots of college students, parents with children in tow thinking about buying a Mac, and the usual assortment of MacMoonies roamed the aisles.

Wonderful as it may have been for many participants, the typical Mac show until now did little to convince the admittedly sometimes unimaginative and uninspired types who generally run things in the real world that the Macintosh should be taken seriously. Though the Mac was billed as a computer "for the rest of us," the typical Macintosh show gave "the rest of them" the impression of a gathering of some sort of deviant sect.

The Interface Group's fabulously successful Comdex shows, however, have always been for professionals in the business and have been seriously businesslike despite the numerous and gala receptions and parties.

Hardware and software vendors, resellers, and (increasingly) information-system professionals from larger organizations come to Comdex to do business. Having been oriented to microprocessor-based systems from the start, Comdex has flourished while older shows (like NCC) that were oriented toward traditional mainframe systems withered and died.

Apple, of course, was an important participant in Comdex from the start. As Apple grew and flourished in the early 1980s, its presence at Comdex grew accordingly, reaching a peak of sorts in 1984 with a giant Macintosh in the middle of one of the largest displays at the show.

far has not met with a reciprocal enthusiasm from Apple. Although taking a bigger part in Comdex, Apple (at least as of press time) has opted not to take booth space at MACdex and has declined to provide speakers or panelists for the MACdex conference sessions.

Chances are good, however, that MACdex will succeed in providing a forum for those who want to do business with the Macintosh — even without a strong commitment of support from Apple at the start. While it is unfortunate that Apple should prefer to remain with those Macintosh-specific shows that are already familiar and "safe," it would perhaps have been better had Apple more enthusiastically endorsed the obvious need for a more professional show for the Mac.

The other Macintosh shows with their retail orientation certainly are not going away. They will continue to furnish the enthusiastic, if somewhat inward-looking, assembly of the faithful they have always provided. But if the Macintosh is to reach

its full potential, it cannot remain within the enclosed walls of what amounts to a permanent minority religion. Rather, it needs to roam freely the streets of the secular marketplace provided by a show like MACdex.

For MACdex to fail would mean failure for Apple Computer and for the Macintosh as well: failure to reach beyond what are really ghetto walls, however brightly appointed and spacious the ghetto may appear to be from within.



By WILLIAM ZACHMANN

Drive Safely.

Safety first.

That's the basic rule of thumb with disk drives because you can't risk crashing. And that's precisely why you should buy a Jasmine DirectDrive.™

Ranging in storage from 20MB up to 140MB, all DirectDrives have to pass the Jasmine torture test: 10 million read/write commands with stop starts at low voltages.

Equipped with Symantec™ Utilities for Macintosh, you can even recover data from a

mistakenly initialized hard drive—something nobody else can do.

Then back everything up with Microseeds' simple yet powerful Redux™ software. That's included, too.

And our true SCSI partitioning means you can allocate distinct storage "partitions" to different users, managing everything from the control panel. Yet another Jasmine exclusive.

We drive faster than the competition and offer a no-nonsense two-year limited warranty.

It's storage you can definitely afford. And given the value of your data and our safety record, you can't afford to consider anything else.

To order, just pick up the phone and give us a call. Mon.-Fri. from 8am to 6pm (Pacific Standard Time). Dial 1-800-347-3228 in the U.S., 415-282-1111 Worldwide. MasterCard, Visa, or American Express.

DirectDrive 20— \$549 DirectDrive 45— \$799 DirectDrive 70— \$999 DirectDrive 100— \$1249 DirectDrive 140— \$1499 Call for P.O. pricing.

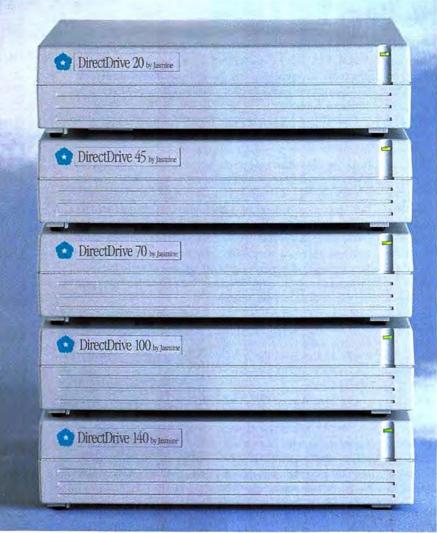


Jasmine

1-800-347-3228

1740 Army Street San Francisco, CA 94124 FAX: 415-648-1625

Phone: 415-282-1111



© 1988 Jasmine Technologies, Inc. DirectDrive is a trademark of Jasmine Technologies, Inc. Symantee Utilities for Macintosh is a trademark of Microseeds. Prices subject to change.

Cheat Sheets

If you've ever spent five minutes searching for the chi sign in Symbol or the Star of David in Zapf Dingbats, you may have become frustrated enough to bang out your own rudimentary reference chart. Sure, it was low-tech and crude, and you probably spilled coffee on it, but at least you could find those pesky font characters.

Now there's a more elegant solution: Perma-Charts, a series of at-a-glance reference guides from Papertech. These laminated charts put a wealth of Mac information at your fingertips in an easy-to-read, well-nigh indestructible format. Macintosh Shortcuts I and II cover keyboard equivalents, hidden commands, and tips on a variety of operations from



rebuilding your desktop file to working with the Font/DA Mover. Introduction to HyperCard provides a comprehensive list of keyboard shortcuts plus usage notes. The font guides to Symbol and Zapf Dingbats cover every possible symbol, including those not shown in Key Caps.

Each laminated Perma-Chart comes in both binder size (\$3.75) and wallet size (\$2.75). Contact Papertech at 3800 Steeles Ave. W., Suite 010, Woodbridge, Ontario, Canada L4L 4G9; (416) 856-2577. (And for the record, pressing the C key and Shift-C will get you Sym-

Take the IEEE Bus

Macintoshes are popping up on lab benchtops everywhere for use in data acquisition, analysis, process control, and monitoring, replacing dedicated controllers of IEEE-488 bus equipment. Keithley Instruments recently made its line of 28 data-acquisition cards accessible to the Mac with its 556 measurement and control system.

The 556 is an intelligent controller with room for ten data acquisition cards. Up to fourteen 556 boxes can be chained together to give a Mac thousands of inputs and outputs. The IOtech Bus Controller, which Keithley markets, sits between the 556 and your Mac. The controller comes in versions that plug into the Mac's serial and SCSI ports as well as a board for NuBus. By not having computer-specific cards. Keithley's existing line of data-acquisition cards becomes the biggest selection available for the Mac.

When Keithley's AMM2 analogto-digital converter is put in one of the slots, the system offers up to 6,000 samples-per-second acquisition and 16-bit resolution. A Motorola 6809 chip and 20K of RAM are used in the 556 to assign buffers to each card dynamically and to perform memory-management tasks, thus freeing up your Mac's CPU for other tasks.

The software interface is IOtech's desk accessory, which makes use of device-dependent commands common to IEEE-488 equipment. Third-party software packages such as LabView, Labtech Notebook, and others are compatible with the 556 system.

Even including the price of a Mac, the Keithley system is less costly than equivalent dedicated IEEE-488 systems. An empty 556 box retails for \$1,400. Data-acquisition boards run from \$300 to \$1,000 each, and Keithley says a typical fully configured system runs around \$3,000. Contact Keithley Instruments, 28775 Aurora Road, Cleveland, OH 44139; (800) 552-1115.

- John Rizzo



The Power Game

"Oh, \$"#@! I didn't save!" You usually hear words to this effect just after a blackout — or right after you've stepped on that little

red switch on your power strip. To ease you through these crises, Kensington has introduced the Power Backer line of uninterruptible power supplies (UPSs).

PAPERTECH

The Power Backers have a listed response time of between one and four milliseconds and will continue to power your Mac for 5 to 65 minutes, which is more than enough time to save and shut down.

The three models suggested for Mac use are the Power Backer 330 (330 VA, \$399), the Power Backer 450 (450 VA, \$599), and the Power Backer 800 (800 VA, \$1,099). If you want to find out more, or you've just said those awful words, contact Kensington Microware, 251 Park Ave., New York, NY 10010; (800) 535-4242 or (212) 475-5200 (in New York).

- Russell Ito



When it comes to electronic mail, InBox is TOPS.



InBox, the powerful yet easy to use electronic mail system is now part of the family of TOPS hetworking products. Which makes InBox the most well-connected E-mail software you can buy.

With InBox electronic mail you can send memos, phone messages, files, outlines — even full-scale reports and spreadsheets—to any InBox user in your company. So, you can share more information and meet less often.

In fact, with the addition of InBox, TOPS now offers a total connectivity solution. Whether you're

using Macs, PCs or any combination, exchanging files, sharing peripherals or sending E-mail messages can all be done easily and transparently. No matter what your needs are, TOPS has the solution.

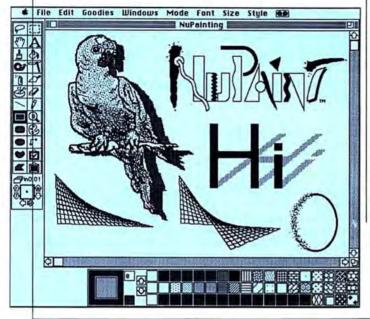
So either call your nearest InBox dealer or call

us at 800-445-TOPS (or 415-769-8700 from outside the U.S. and Canada). Or write, TOPS, 950 Marina Village Pkwy, Alameda, CA 94501.



What's Nu?

NuPaint, that's what. A blackand-white paint program with some usual and unusual implements. NuPaint's shape and selection tools work predictably, but each shape tool can remember its own fill and pen-size setting. Selections can be freely rotated, skewed, distorted, or given perspective. Documents can only be in portrait orientation. A Revert Eraser converts the swept-over portion of your document to its last saved version.



New tools include a Mixing Bowl that jumbles pixels to soften edges and randomize patterns. The entire screen image can also be uniformly or randomly mixed. The Masking Tape tool defines an area whose inside or outside is temporarily protected from the effects of the spray can and sweeping transformations.

Shadows can be added to existing shapes by selecting the subject and defining the plane of the shadow. With this effect, you can simulate lighting from any direction. Fill patterns can be 8-x-8, 16-x-16, or 32-x-32 dots. NuPaint's extensive fill pattern editing features include random dot placement, symmetry, shifting, and rotation.

Two unusual tools may save you some bit-fiddling. The Trowel repairs edges whose pixels may have been dislodged by distortion or reshaping. It scoops up stray dots and scoots them in the direction you push. The Razor removes loose clumps of dots with a specifiable cross section. It can be used to de-speckle an image or to de-fuzz distorted lines. Special Save options let you create high-resolution (150 to 300 dpi) paintings by dividing your document into 4 or 16 8-x-10-inch panes and letting you edit each as a separate page at 72 dpi. At printing time, NuPaint can automatically recombine the panes and scale the image (and its dots) to achieve high resolution.

NuPaint works on Mac 512KEs and on up. For all you future trowelers and shavers, the program sells for \$139.95. Contact NuEquation, Inc. P.O. Box 516143, Dallas, TX 75251-6143; (214) 699-7747.

- Salvatore Parascandolo

Behold NuPaint's unusual tool palette and its vast scrollable pattern palette. These images showcase the shadow, distortion, and mixing-bowl effects.

Multimedia, we give you the tools, you give your imagination

Captured at 24 bits with ColorFreeze-24™, color separated with Modern Artist™ 2.0



Call toll free 1-800-547-3303 for complete information on our products and multimedia, animation packages or consult your nearest Apple Dealer

Everybody talks about multimedia, Computer Friends was the first to do something about it. We are still the first to give you a complete, professional and integrated solution for your TV, print, animation and paint production requirements, at a price you can afford.

TV Producer™, Animation



Gen-Lock Overlay Card.
Basic tool for multimedia presentations. Send your presenta-

tions to video or tape them on VCR. Overlay graphics on live video. Available with animation software.

ColorFreeze-24™, Electronic Color Photography.



Capture high quality color or black and white shots from camera or VCR, modify and

save in your favorite paint program or desk-top publishing program (QuarkXpress™, PageMaker™ etc.).

Modern Artist™ 2.0



Most complete and versatile color paint program. Spectacular special effects. Includes 4 color separation for professional color printing.

PanChroma™ Printer



Finally 300 dpi color printing in a compact, relia ble and affordable thermal color

printer. Produce beautiful color illustrations or instant color transparencies for your presentations.

Computer-Friends, Inc. 14250 NW Science Park Dr. - Portland OR 97229 - tel. (503)626-2291 - fax (503)643-5379

Serial Multiplication

Many Mac owners have gotten to know their Mac's back panel a lot better than they ever wanted to. You'll see them yanking the cable out of that single Centronics RS-232 port only to jam another cable in - it's like watching someone juggle a toaster, a coffee maker, and a blender in a kitchen with one socket.

For those who've grown tired of looking at their Macintosh's backside, Method Systems has introduced the DataCaster, a configurable signal buffer/broadcaster that gives you eight RS-232 ports and lets you send the same signal to as many as seven devices simultaneously. And if you need to send your data through several Data-Casters, you can increase the distance between units with MSI's Mini-Mux short haul multiplexer. The DataCaster lists for \$345, the Mini-Mux for \$395. So to stop working Mac backwards, contact Method Systems at 3511 Lost Nation Road; Willoughby, OH 44094; (800) 533-6116.

- Russell Ito



When one RS-232 port isn't enough, Method Systems' DataCaster gives you eight.

Tidal Waves

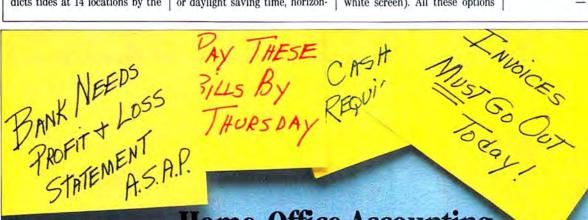
Are you putting out to sea? Planning a fishing trip? Do you want to know the best time to visit the tide pools? If you answer yes to one of these questions, you might want to consult Tide Guide '89 from Zihua.

Tide Guide is a DA that predicts tides at 14 locations by the harmonic method. Previous tides and the influence of moon, sun, and planet orbits are studied to make future projections.

A tide graph for either a day or a week is displayed on-screen for the location and date of your choice. Options include standard or daylight saving time, horizontal (time) and/or vertical (feet) axes, and a 12- or 24-hour time line. You may choose to display the moon phase; shaded nighttime hours and time of sunrise and sunset; and color patterns for sunrise, sunset, and the moon (no, it won't bring color to your black-andwhite screen). All these options are available in a dialog box under the Tide Guide menu.

Order Tide Guide '89 or Tide Guide '90 (if you like to plan ahead) for \$19.95 each (California residents add sales tax) from Zihua, P.O. Box 51601, Pacific Grove, CA 93950; (408) 372-0155.

Laura Johnson



Home-Office Accounting Just Went Professional.

Introducing Back to Basics: Professional

Back to Basics: Professional, the first accounting system for home businesses, is an easy-to-use system that really performs. So now you don't have to be an accountant to keep your books like one. And at just \$199, Back to Basics: Professional is a small investment that pays off in big ways:

- Professional Double-Entry Accounting System
- 4 Modules for One Low Price Integrate or Use Stand-Alone
 - O General Ledger
- O Accounts Payable
- O Accounts Receivable O Invoicing New!
- Perfect for the Home Office or Any Small Business
- Hands-On Practice and Tutorials
- Technical Support Hotline Available
- 30-Day Money-Back Guarantee

(Or Call 1-404-564-5800)

ONLY \$199



Back to Basics makes accounting faster, safer, and more accurate than manual systems - and easier than ever before. Take control of your bookkeeping, and start making more of your money today! To order, call the toll free number below or see your dealer.

System Requirements: IBM PC, XT, AT, PS/2 and true compatibles with minimum 128K RAM; PC-MS/DOS version 2.0 or greater; standard 80 column printer. A minimum of 2 disk drives: hard disk is recommended for best results.

Macintosh 512K, 512Ke, Plus, SE, Mac II; ImageWriter I, II, or LaserWriter (LaserWriter cannot print checks); and a minimum of 2 disk drives. Hard disk is required for Mac 512K and is recommended for others. Apple II version available without involcing. Call for details.

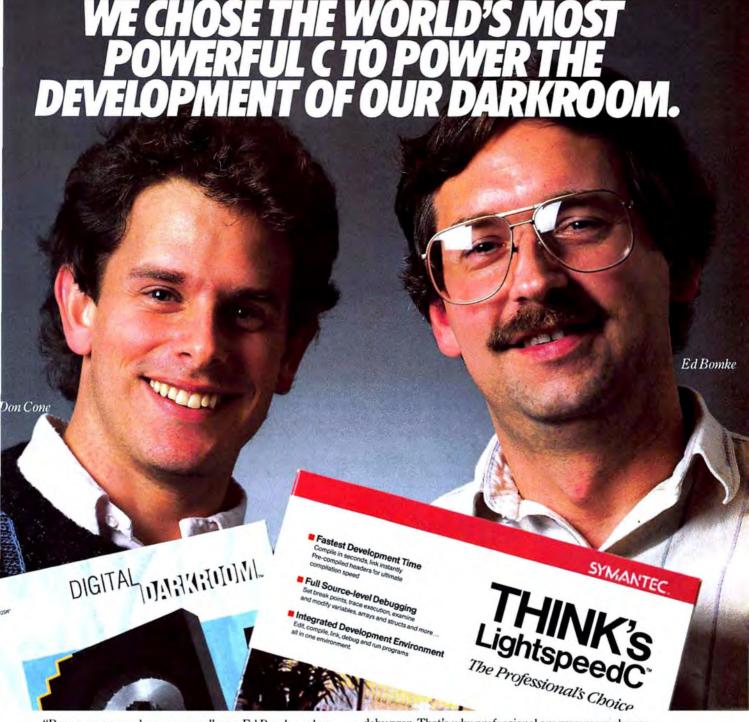
To Order by Mail Send \$199 plus \$5 Shipping and Handling* to: (in Georgia add applicable sales tax.) *Call for international rates.

Peachtree Software

A Member of the Intelligent Systems Family

4355 Shackleford Road, Dept. MA, Norcross, Georgia 30093

Please circle 54 on reader service card.



"Power, power, and more power," says Ed Bomke, when asked why he chose THINK's LightspeedC to develop Digital Darkroom.™ "With its unparalleled power, it really deserves its reputation as "The Professional's Choice." Don Cone, his partner, agrees, "Its power really shows in the debugger. It lets us test code, debug, revise and rerun in one smooth, fast process.

That's power. The benefit to us

is faster turnaround time. So,

Then turn them into working

programs sooner... without any wasted effort."

code quality . . . and a superior

Macintosh-style source level

Power, speed, reliability,

we're thinking about them.

it's easy to test out ideas while

THINK's LightspeedC 3.0

- Full K&R implementation with Harbison and Steele extensions.
- Macintosh-style source level debugger for incredibly fast development.
- Code generator support for 68881 & 68020.
- Precompiled headers for ultimate compila-tion speed.
- · Compiles up to 48,000 lines per minute*
- · Links any size program in seconds.
- · Full Toolbox, OS, UNIX libraries, and SANE numeric support.
- · Generates 32-bit clean code.
- Free telephone support.

debugger. That's why professional programmers choose THINK's LightspeedC over competing C implementations. THINK's LightspeedC is the industry leader. Its inte-

grated multi-window text editor, compiler, linker, source level debugger, and auto-make facility make for a winning combination. It's the C that created winners like Digital Darkroom,

FoxBASE + /Mac, Aldus PageMaker,® Adobe Illustrator,[™] and Quark XPress™ 2.0. Ed Bomke says its power and performance made developing Digital Darkroom "almost instamatic."

Call (800) 228-4122 Ext. 298F for more information, or visit a dealer near VOU.

The Professional's Choice.



SYMANTEC - Symantec Corporation, 10201 Torre Avenue, Cupertino, CA 95014, 408/253-9600.
Suggested relatifere: \$249.*48,(80)LPM on a MAC II or an SE with accelerator, 15,000 LPM on standard SE or Plus. Program requires 1 megabyte of RAM. Debugger requires 2 megabytes RAM and MultiFinder. Hard disk strongly recommended. THINK's LightspeedC is a trademark and Symantec is a registered trademark of Symantec Corporation. Lightspeed is a registered trademark of Lightspeed, Inc. and is used with its express permission. Digital Darkroom is a trademark of Silicon Breach Software. Inc. Other brands and products are trademarks of their respective holders. © 1989 Symantec Corporation

Accelerate to DayStar

Speed is a silly thing. You know how fast you're going only by how fast you used to be, and whatever your speed is, it's never as fast as you wanted it to be. So go figure.

And in the meantime, you might consider the Accelerator II, a 33-MHz 030 accelerator for the Mac II from DayStar Digital.

The Accelerator II is actually a pair of connected boards, one of which houses a 32K cache of 25-nanosecond static RAM, while the other carries a 68030 processor. To round out the package, DayStar also offers an optional 68882 math coprocessor, although the compa-

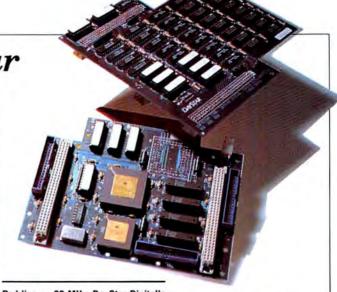
ny says that its system will work fine with the Mac II's standard 16-MHz 68881 coprocessor.

The Accelerator II clips directly into the original 68020 socket and is reportedly compatible with standard (whatever that means) Mac II software and A/UX.

The price of this speeding ticket is \$6,000, plus an additional \$1,000 for the optional 68882 math coprocessor.

You can catch up with DayStar Digital at 5556 Atlanta Highway, Flowery Branch, GA 30542; (404) 967-2077.

- Russell Ito



Red line — 33 MHz. DayStar Digital's 33/030 Accelerator II is a 33-megahertz accelerator board for the Mac II.

Mini Scan

Scanners are becoming as common as printers these days, and that means working space is becoming as scarce as \$200 SIMMs.

To help reclaim some of that precious territory, Microtek Lab is introducing a new line of smaller and cheaper scanners for original equipment manufacturers.

The first model in the line is the MS-II, a 64-shade, gray-scale, sheetfed unit that's approximately half the size of the average flatbed scanner.

A 50-page-document feeder is built-in, and users can select from 196 brightness and contrast settings and 12 halftone patterns. The MS-II's resolution is adjustable from 75 to 300 dots per inch (dpi), and images can be scaled from 25 to 100 percent in 16 increments of 5 percent each.

The MS-II will be available only

to OEM vendors, and Microtek's pricing will depend on the number of units purchased. To find out more about the MS-II, contact Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247; (213) 321-2121.

- Russell Ito

Make the Optimal Choice.

Optimal Performance.

12 and 28 ms access time, data caching, 1:1 interleave.

Optimal Reliability.

50,000 and 30,000 hour MTBF, 100g shock rating, and 72 hour diagnostic burn-in for the ultimate in reliability. Full 2 year warranty and 30 day money-back guarantee.

Optimal Flexibility.

External and internal models available. Keep your SE's second floppy, or return it for a \$100 credit. Adding a 31 meg high performance

hard disk can cost as little as \$349!

650 Main Street Amherst, MA 01002





Optimal Drives.

Whether you choose our noiseless external models with a true zero footprint, or our easy to install internal models, the Optimal choice is easy to make. Quality and power at an affordable price, only from Optimal Technology.

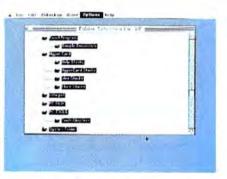
Optimal Price.	Internal	External
Optima 31 (28 ms)	\$449	\$599
Optima 40 (12 ms)	\$599	\$749
Optima 48 (28 ms)		
Optima 80 (12 ms)	\$949	\$1099
1 Meg SIMMs	\$199-\$	249

Call (800) 637-0088





Credit cards not charged until order is shipped. Add 1% for UPS ground shipping, 2% for UPS second day air, 3% for UPS overnight. Add 3% for Visa/MC. Massachusetts residents add 5% sales tax. Technical support telephone number provided with the purchase of all products. Prices, specifications, and policy subject to change without prior notice. Optima, Optima 40, Optima 40



Back up your hard disk-fast.



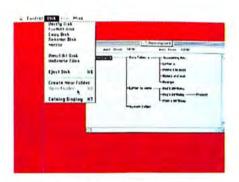
Optimize your hard disk for better performance.



Recover a damaged disk or undelete accidentally erased files.



Locate files on your hard drive.



View and/or change folder organization.



Password protect your sensitive data.

All this for just \$79.* What's more, you don't have to be a technical genius

to use it-PC Tools/Mac is easy to use and understand.

See why hundreds of thousands of people have made PC Tools the best-selling utilities for personal computers like the Macintosh. For the dealer

nearest you, or to order direct,

call (503) 690-8090 M-F, Central

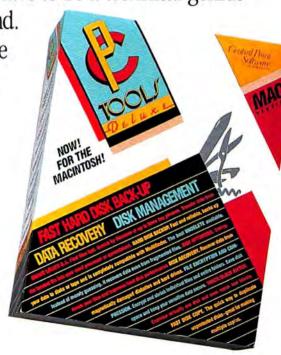
8:00 a.m.-5:00 p.m. (West

Coast time). *Plus \$5 s/h.



Beaverton, Oregon 97006 (503) 690 8090

S/N



RUMOR MANAGER

Now that we've told you how to upgrade your memory, here's a ripple: When is a SIMM (yes, those single in-line memory modules that the world is so short of) not a SIMM? Well, if it doesn't work in your Mac, it might as well not be one. And the new 4-megabyte RAM SIMMs that are starting to become available won't work in a Mac Plus, SE, or II.

Why not? Simple. Apple walked out of a SIMM standards meeting some time ago. A standard was adopted.

'Apple didn't follow it. Is there a solution? You bet there is. It's called a new logic board.

Do you think Apple is go-

ing to give it to you free? Do you think your dealer will install it free?

The current clip-art boomlet will continue unabated. There's an enormous amount of clip art now available, and it sells remarkably well. Once use of the new small scanners becomes widespread, look for lots more clip art. Scanners seem to be the seed from which clip art publishers grow.

On the subject of scanners, the market for these popular peripherals (the modem of 1989?) is rapidly expanding in two directions. There are several new small models (as alluded to above), capable (in general) of recording 64

gray levels. Some of them feature resolutions as high as 600 dots per inch (dpi), while all can achieve at least 300 dpi. None can scan in color (well, what do you expect at the tiny prices asked?), and several don't even have bundled software! You provide your own drivers and other software. That might save you some money if all you plan to do is run an optical character recognition (OCR) program like OmniPage or TextPert that comes with all the necessary software. (But if you can afford one of those programs, you can afford a better scanner. But I digress.) Beware the hand-held units. Few people have hands steady enough to achieve 200-dpi resolution. And be leery of units that don't provide any software. Many a manufacturer has tried and failed to get software.

The second new direction in the scanner market is the trend toward very-large-bed, full-color scanners. The prototype we saw had a 30-x-40-inch bed and could scan 256 colors. The manufacturer hopes to offer an option that will scan up to 4,096 colors. No one was willing to talk price, but we were told they would take a Ferrari in an even-up trade—a new Ferrari.

We now have low-end word processors (like MacWrite, MoonRaker, and WriteNow) and high-end word processors (like Word,

If you missed MacUser Labs' color

If E-Machines told you the T16[™] color Macintosh monitor set the

standard to which all others aspire, you'd probably think we were tooting our own horn.

But what would you think if we told you MacUser Labs made the T16 the standard bearer? It's true. Of the 25 color monitors they tested, MacUser Labs scaled their ratings of all the monitors against the best monitor—the T16.

Nearly two Apples for the price of one.

With a T16, you'll have almost twice the working space of Apple's 13" monitor. Yet your color display won't cost any more than your Macintosh II.

As our top-ranked monitor, the T16 wins the MacUser

Labs Seal of Approval.

been demanding. Actual size 72 dpi, with a palette of 16.7 million brilliant colors on a Sony Trinitron modified to E-Machines' exacting specs.

You can put a little color in the cheeks of your company president next time you produce the newsletter. Or use color to distinguish multiple layers and objects in CAD drawings. Or create charts to transform complex numbers into easily understood color graphs.

Its (T16) impressive gray purity and color saturation provide excellent image quality for both color and shading. It has a pleasing white screen and the sharpest image of all the large-screen monitors we tested. In short, it makes no compromises. The T16 is an excellent choice for CAD/CAM or color graphics work.

Whatever you do on your Macintosh, you'll do it more productively with a T16.

This is the

value vou've

FullWrite, and WordPerfect). That leaves a gap in the marketplace. There is no middle-of-the-road Mac word processor. Several large software houses have noted this "window of opportunity," and efforts to be the first in the middle are now reaching fever pace. You might even see some results later this year, but remember that the average gestation time for a Mac word processor is nearly two years. If you get a chance to join a pool on when the first middle-of-the-road processor will appear, take 1990.

There's a scandal brewing in the hard disk industry much like the famous Chevy-engine-in-a-Cadillac

brouhaha that rocked General Motors a few years ago. If you forgot what happened there, GM was selling premium cars at premium prices with engines from cheaper lines. What's happening with hard disks is similar. A new model is introduced and is touted as having a well-known, highly regarded, very reliable, and very expensive HDA (harddisk assembly — the actual guts of a hard disk). Several months down the road, a cheaper HDA (often made overseas) is substituted without any fanfare and without any price reduction. And you wind up buying something inferior to what you think you just paid for. You should ask your hard-

disk dealer exactly what HDA is in each hard disk you buy.

The Tandy/Radio Shack Macintosh II clone project is still alive and kicking. Reports of its death were premature. It was on hold for a while until Tandy could be sure that Apple intended to produce Macintosh II-type machines for a few more years. After all, there's no point in building a clone only to discover that the original has mutated to an entirely different and possibly incompatible form. By the way, the prototype Tandy units canuse 4-megabyte SIMMs. good rumors recently? Have you heard any

Started any yourself that

you'd like to take credit for? Can you share your "knowledge" with us? Does your legal department agree? Will you share anyway? If we use your rumor we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted.

Our old-fashioned mailing address is Rumor Manager, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. Our electronic addresses are MacUser (on MCI Mail). 74206,204 (on Compu-Serve), and X0259 (on AppleLink). No calls please; the Rumor Manager has an unlisted number and much prefers it that way.

report, here's a condensed version.

As with other E-Machines models, the T19 screen image is very sharp and has excellent color quality and gray purity. Image quality is comparable to the T16, and for those who want a larger screen, the T19 is the way to go. E-Machines has once again produced a winner in the color monitor market.

72 hertz eliminates flflflflicker.

Try staring into a 19inch monitor

with a 60 hertz refresh rate for an 8-hour day. You'll be watching a constantly throbbing screen, and your eyes will feel like they put in a 24-hour day. Not exactly condusive to getting things done. The T19 has the fastest available refresh rate of 72 Hz. Now that's refreshing.

Even more refreshing, the T16 and T 19 are the only color monitors certified to comply with ANSI Human Factors Specification 100.

We'd like to color your thinking. Of course

we would-but you should decide for yourself if the T16 and T19 are as good



as MacUser thinks. Go see one and conduct your own review. For details, write E-Machines at 9305 SW Gemini Drive, Beaverton, OR 97005 or call us direct for your nearest dealer: 1-503-646-6699.





Make Your Mark, Together

Introducing MarkUp, Workgroup Editing & Review Software

It's ironic that documents created with hi-tech efficiency revert to archaic methods for review: lots of paper, red pencils, scribbles, mail delays and wasted time. Now there's real improvement for group editing, review and approval — MarkUp.

Here's how it works: print an image of a Macintosh document to disk from any application with MarkUp Document Creator. Publish it electronically to a workgroup for review.

Group members don't even need the creating application, just MarkUp. Reviewers work simultaneously — on

a network or by transferring files — making comments on transparent overlays of the MarkUp document.

MarkUp provides tools to rewrite, annotate, highlight, strike out, correct, manage and approve documents of all types. It even keeps a journal and status of editing activity.

When review is completed, use MarkUp's powerful merge feature to combine a group's comments and print the annotated document as a basis to rework the original. Better yet, open the original document next to the MarkUp document with Multi-Finder and copy changes directly.

Please circle 2 on reader service card.

Real productivity improvement means working better — together! Whether your group numbers two or twenty-two, you'll produce higher quality documents in much less time. Reduce paper traffic, meetings and travel. Use MarkUp for reports, drawings, letters, spreadsheets and proposals.

Inquire about MarkUp today. Take a step toward making your mark, together.

For more information or the dealer nearest you, call:

Mainstay

5311-B Derry Avenue Agoura Hills, CA 91301 (818) 991-6540 71 rue des Atrebates B-1040, Brussels, Belgium 322/733.97.91

Quick Clicks

GRAPHICS

GraphistPaint II

GraphistPaint II is a paint program of a different color. Able to import a variety of file formats and armed with some interesting special effects, GraphistPaint II might, despite a cumbersome painting environment, find its niche combining and retouching graphic documents. Built with image processing in mind, GraphistPaint looks for Data Translation's Quick-Capture video digitizing card when launched. If found, the Digitize command in the File menu is activated, letting you grab video images and open them directly in GraphistPaint.

A "stencil" beneath the document layer is the major feature that sets GraphistPaint II apart. The stencil can be used as a guide, letting you display construction lines that will not appear in the finished work. Or, since selections can be transferred to and from the document, the stencil can serve as a library area, holding working shapes and brushes. But most importantly, the stencil can hold an entire

The Five-Mouse	Rating
***	EXCELLENT
***	VERY GOOD
\$\$\$	Good
\$ \$	FAIR
\$	Poor
•	DOESN'T WOR

Quick Clicks are short reviews of released products — not beta release, prerelease, or vaporware. If it appears here, it is available commercially.



The stencil is GraphistPaint II's best feature. On the left is the document layer, and on the right is the stencil being incrusted into the document by a large, round brush. The stencil's power, however, is undermined by some features that are not so well implemented.

image. One use would be to keep a copy of the working document for quick restoration should your editing go awry, like the Snapshot feature in MacPaint 2.0. Another use would be to combine separate images.

GraphistPaint can read Paint, PICT, TIFF, and IRIS files. The manual claims PixelPaint files can be opened with 5-megabyte Macs, but that option remained dimmed on my machine. Aba suggests trimming the System file to free up memory. Some export options were also not implemented in this version. (Support of raster image file format, or RIFF, mentioned on the package could not be licensed.) Images may be opened normally, superimposed on the working document, or imported into the stencil layer. By toggling it forward, you can edit an image in the stencil. Since stencils exist only in memory, they'll be lost when the document is closed. However, they may be saved as standard files, and since documents and stencils share coordinates, reopened works in progress will remain aligned.

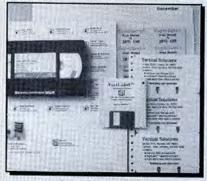
Images in the stencil can be incorporated into the document — seemingly from within. The Incrustation feature lets you paint the stencil (with the brushes, paint bucket, filled shapes, and text) into the working document. Incrustation also works by color. One option limits it to only targeted pixels; another selects which pixels from the stencil will incrust the document.

Unique among color paint applications, GraphistPaint II supports 16 "ink" modes, which determine the final effect when two or more graphic elements overlap. The eight logical modes (Copy, Or, Xor, Bic, and their four inverses) should be familiar to most Mac users. The eight arithmetic modes (additive, subtractive, on lighter, on darker, blend, white transparent, and additive or subtractive cyclic) are new. These modes operate on the numerical values of the color pixels to calculate the new colors. The results of these calculations will be limited by the status of the current palette. If the resulting color is not in the palette, the nearest available shade will be substituted.

Six paintbrushes form the core of GraphistPaint's retouching tools. The round and square brushes paint with the current pattern in sizes from 1 to 125 pixels. (Brush sizing is global — it also affects the line tool, spray can, and the borders of shapes.) The paintbrush

Label Software "That's easy to use." **That's easy to use." **In total total

Enter Data.



And Label.

FastLabel 1-800-942-4008

Vertical Solutions PO Box 7535 Olympia, WA 98507 206.352.2097

Please circle 68 on reader service card.

Quick Clicks

holds a collection of ten (nine preset, one user-defined) brushes. The antialiasing brush works in color to smooth jaggies and may be adjusted for size (1 to 16 pixels) and transparency (the degree of blending). The polybrush (a user-defined filled polygon) and pixel brush (which paints with the last image placed in the stencil) complete the array. Colors may also be smoothed with the diffusing action of the water drop.

Unfortunately, the full impact of these features is undermined by details that are less well thought out. For example, three selection tools (rectangle, lasso, and polygon) would seem to have all bases covered. But none of them can be adjusted to cinch down onto an object when you release the mouse button, limiting your ability to select with precision. As a consequence, it can be difficult to apply visual effects (like smooth or blur) to specific locations. Further, areas defined with the lasso and polygon are nonetheless selected with an accompanying rectangle when transferred to the Clipboard or when dynamic effects (distort, flip, rotate, and spherize) are applied.

GraphistPaint II also has a nonstandard implementation of pasting. Any image transferred through the Clipboard is pasted at the top-left corner of the stencil and automatically selected as a pixel brush. (Odd-shaped selections are pasted with a surrounding white bounding rectangle that will mar the document when the selection is applied to the document with the pixel brush. Aba suggests using the White Transparent mode as a remedy.) The advantages are quick duplication and the ability to paint with the pasted image. However, these are outweighed by the potential damage to unsaved stencils.

Using GraphistPaint's palette is also less than intuitive. For example, to create a filled shape with a contrasting border, you must drag across the palette: the first color for the border, the last for the fill. If the desired fill color is to the left of the border color on the palette, the combination cannot be produced. Dragging the palette only works in one direction.

Colors for gradients are selected in the same way, making palette organization even more important. Graphist-Paint II has several options for building color gradations and shading effects, but to access them you must set parameters in one menu (Shadings dialog box, Edit menu) and turn them on in another (Shade on the Effects menu).

GraphistPaint II is not terribly forgiving. Even with a substantial allocation of RAM, undo capabilities are limited. Some functions cannot be undone at all. Others, like rotations or distortions, can be undone if you click to check the results of the action. Worst of all, if you hold down the Option key and copy an area, move the duplicated area and delete it while it's still selected, it leaves a rectangular hole in the document — this action also can't be undone.

These considerations mean GraphistPaint II won't be your first choice if you need to create an image. Though this version will not suit everyone or, for that matter, every job, Graphist-Paint II's strong importation capabilities and the stencil's power to combine pictures are useful features.

- Carlos Martinez

[At press time, Aba Software had suspended operation; a new distributor has not yet been announced. — Ed.]

GraphistPaint II



List Price: \$495

Published by: Aba Software, 41 Great Valley Parkway, Malvern, PA 19355; (800) 234-0230.

Version: 1.0

Requires: Mac II with 2 megabytes of

RAM (4 or 5 megabytes recommended), 8-bit color board, and

hard disk. Compatibility: MultiFinder friendly

with enough memory.

Application Size: 156K

Copy Protection: None

HARDWARE

WriteMove

GCC Technologies' WriteMove is the smallest, lightest Macintosh printer available. This unit is based on the proven and popular Kodak/Diconix 150 portable ink-jet printer. GCC provides a version of the printer modified so that it can produce 192-dot-perinch (dpi) resolution (twice its normal resolution), a Chooser-selectable driver, special fonts, the necessary cable, and a power adapter.

It's very hard not to be impressed with the WriteMove's tiny size. It's cute. And once you get it going, you'll be very impressed by its extremely low noise level. The sound of the paper moving is often all you can hear.

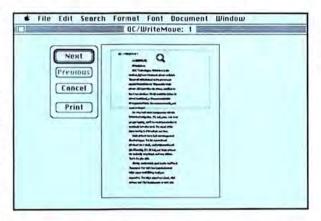
Ink-jet printers have both advantages and disadvantages. Ink-jet printers are basically very simple and very reliable, and their ink reservoir and print head are a small, easily replaceable unit (\$11.95 list, with a street price of about \$8.75). That's the plus side.

Getting consistently good results is difficult. The papers that work best (special coated ink-jet paper and 25-percent rag bond) are expensive. The ink-jet paper has a hard, slick surface, and I find it unpleasant to work with. You need to experiment to find the ink (either plain or a special ink-jet formula) and paper that produce the results you prefer.

The ink and print-head cartridges are rated to print 100 high-quality pages at 192 dpi or 400 pages at 96 dpi per cartridge. Those ratings are conservative. If you print mostly text, you'll get much better performance.

WriteMove prints at about the speed of an ImageWriter in high-quality mode. Draft mode is about four times faster. Since WriteMove creates font images in your Mac before it prints, however, there's often a time lag of 30 to 60 seconds before printing actually commences.

WriteMove needs a lot of disk space to create an image file. That means you can't print some documents immediately if you're using a 1-megabyte



This is WriteMove's Preview mode. Use the magnifying glass to see your material in full size.

machine or if MultiFinder is active. In either of those cases, the image document will be saved and can be printed later when more memory is available.

The quality of the printing varies incredibly depending on the paper and ink used. Your choice of font also affects final quality. Some test results were surprising. For example, using ink-jet ink and very expensive (7 cents per sheet plus) ink-jet paper resulted in overly dark text and graphics with grays that printed nearly solid black. Cheaper paper worked better in this case.

However, that doesn't mean that very cheap, ordinary printer paper works well. It doesn't, and you shouldn't waste time with it. Also stay away from draft mode except for very rough working drafts. Draft quality is not impressive.

WriteMove comes with a good, basic selection of Bitstream fonts. These outline fonts are optimized for GCC's 300-dpi Personal LaserPrinter and sometimes don't work perfectly at 192 dpi. Additional fonts are available from GCC.

Setting up the printer is very easy, particularly if you plan to use the power adapter rather than the batteries. I found that paper fed better when I put the printer on a thick book, lifting it an inch or two off the table surface.

Your best bet is to use fanfold paper. Trying to get consistent alignment in manual feed mode is very frustrating (and nearly impossible). WriteMove can handle paper up to 8.5 inches wide and as small as 6 inches wide by 5 inches long. Regular business envelopes are too wide to be fed normally

through the WriteMove. They must be inserted end first.

Unfortunately, the cable supplied is too short. It's only about 3 feet long. The manual says that you must use this cable and doesn't provide pin-out charts to enable you to build or buy a longer one. My normal printer position is about 10 feet from my Mac. Obviously the WriteMove couldn't go there. I had some trouble finding a clear space close enough to my Mac, so I finally resorted to putting the Write-Move on a chair next to my desk. Good thing it's so quiet.

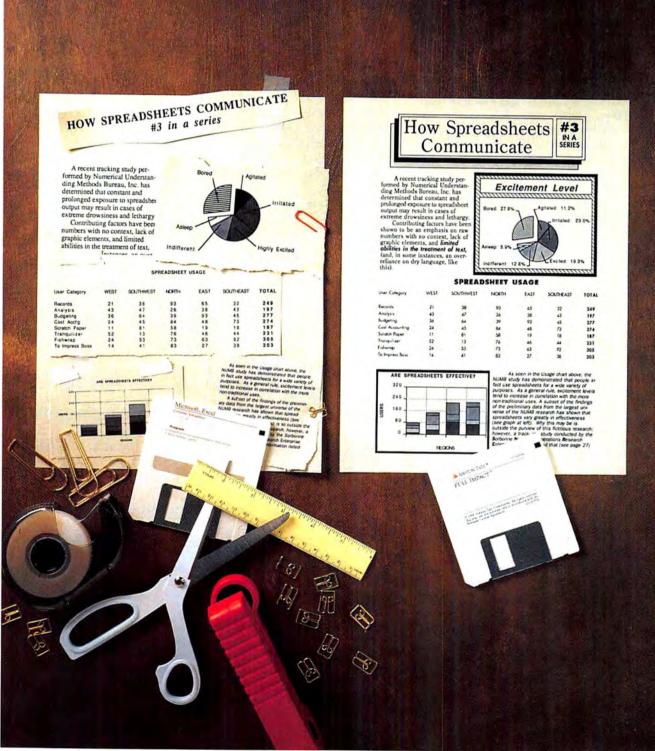
really

wanted to like this printer.

Actually I really wanted to love it. It's quiet and it's tiny. But it's also very frustrating. The longer I used it, the less I liked it.

Don't use the batteries unless you absolutely have to. WriteMove requires NiCad cells, which are expensive and require special rechargers. Since you can't (yet) use your Mac without having an electrical outlet handy, carry the power adapter. It's

TRY FULL IMPACT AND SEE WHY EXCEL DOESN'T.



It's the difference between merely analyzing something, and actually seeing what it means.

Introducing Full Impact, from Ashton-Tate.

Full Impact is a spreadsheet program designed expressly for the Macintosh that goes beyond the basic number-crunching capabilities of Microsoft Excel: it gives you the ability to easily turn your work into clean, crisp—and understandable—documents.

How? By letting you take full advantage of the way you're already used to working on the Macintosh.

Start by simply entering your data. Then, select all or part of it, and instantly create a chart using those values—simply by clicking on the appropriate chart icon from the icon bar.

Need to write some text explaining your analysis? And highlight certain passages? Full Impact's text editor gives you plenty of fonts, sizes, and styles to choose from.

What if that block of text

would look better somewhere else? Fine. Just click on it, and drag it there. You can even bring in art from other programs, then merge it with your text and data, all on the same page.

But lest you get the impression that Full Impact is merely a presentation program disguised as a spreadsheet, consider this: with over

half a million

ASHION-TATE

FULL IMPACT
the presentations that mean business



usable cells (far more than any other Macintosh spreadsheet), Full Impact gives you more than enough room to handle even the largest projects. And more than enough speed to recalculate them quickly.

You can work with as many as eight spreadsheets simultaneously. And then link them all together. Or create powerful,

FULL IMPACT vs. EXCEL

Full	Impact 1.0	Excel 1.5
Power		
Usable cells with		
1 Mb RAM	512,000	50,000
Linked Spreadsheets	Yes	Yes
"C"-like macro language	Yes	No
Customizable Icon Bars	Yes	No
Presentational Capabilities		
Print charts and spread-		
sheets on one page	Yes	No
Mix fonts, sizes, styles		
cell by cell	Yes	No
Drawing tools	Yes	No
Easy-to-move,		1
formattable text blocks	Yes	No

time-saving macros, and even customizable icons to tie them to.

You can also exchange files with many other popular programs, including Excel and Microsoft

Works, Lotus 1-2-3, all of Ashton-Tate's dBASE* products, and much more. So you won't lose your investment in your current data.

SAMPLE FULL IMPACT FOR FREE.

To get the full impact of Full Impact, just call 800 437-4329, ext. 3500, and we'll send you a full-capability product sampler.

What could be more impactful?

ASHTON · TATE°

MEET

THEIR

MATCH!

Virex

Virex is the first comprehensive solution to the threat of Macintosh computer viruses. Virex is unique among anti-viral programs because it both DETECTS the presence of computer viruses AND REPAIRS application and system programs on files, disks and servers.

Virex was written and is updated by Robert Woodhead, the author of Interferon and a leading authority on computer viruses.

Virex uses a simple icon-driven interface. You just select a file or disk, click the diagnose or repair icon and let Virex do its work. A comment window tells you what Virex finds. Help is always on-line.

Virex combats all known Macintosh viruses including Scores, nVIR, Hpat and INIT29. HJC Software plans to update Virex if and when new viruses occur.

Virex runs on the Plus, SE and II, with a minimum single disk drive.



HJC Software, Inc.

P.O. Box 51816 Durham, NC 27717 (919) 490-1277

1988 HJC Software, Inc.
 Virex is a trademark of HJC Software, Inc.
 Macintosh is a trademark of Apple Computer, Inc.

Please circle 97 on reader service card.

Quick Clicks



WriteMove's printing ability is not obvious from a photo. How good a job can something so tiny do? Very good, if you can find the right combination of paper, ink, and fonts.

smaller, lighter, and a better power source than the battery and recharger combination.

Battery life was reasonably long. I got between 40 and 50 pages from each fully charged battery set. However, that figure will drop sharply if you forget to turn the printer off between jobs.

Members of CompuServe's MAC-PRO Forum helped me evaluate papers and inks. In particular I'd like to thank Tom Tamlyn of New York. Tom tested numerous papers and discovered how well Rediform's 25-percent Rag Bond works.

The Chooser-selectable driver software GCC provides is good. It works well with all major word processors and has a really well done Preview mode. It did have trouble with some programs; in Smartcom II, for example, it cut off the right-most dozen or so characters.

The Preview mode proved extremely useful. When your paper costs between 5 and 8 cents a sheet (the cost of good inkjet paper), it's important to be able to see what your output looks like before committing it to paper. I'd like to see a preview feature like this one in every printer driver.

GCC also includes the QuickSpool printer spooler with WriteMove. QuickSpool is a decent background spooler, but owing to the way the WriteMove software forms images and sends them to the printer, you don't usually save much time by using it.

I really wanted to like this printer. Actually I really wanted to love it. It's quiet and it's so tiny. But it's also very frustrating. The longer I used it, the less I liked it. I think that ink-jet printers have a good future with the Mac, and WriteMove is a good first effort, but unless you have to travel with a printer frequently, I advise waiting for the next model and some better fonts.

- Steven Bobker

WriteMove ttt



List Price: \$699

Manufactured by: GCC Technologies, 580 Winter St., Cambridge, MA 02154; (617) 890-0880.

Version: 1.0

Requires: A hard disk for practical use; works with Mac Plus, SE, SE/30, II, IIx. Compatibility: Mac SE/30, Mac II, IIx,

MultiFinder friendly.

Hardware Size: 10.8 inches wide, 6.5 inches deep, 2 inches high; 3 pounds without batteries, 3.75 pounds with batteries inserted. Power adapter is 2-x-3.5-x-1.75 inches, weighs under a pound, and has a 6-foot connector cable attached.

Software Size: Depends on which fonts are installed; can easily exceed 1.5 megabytes.

Copy Protection: None

M U S I C

Graphic Notes Music Publisher

Graphic Notes' Music Publisher 2.0 does for music notation what desktop publishing did for newsletters. This vastly improved and enhanced version has beautiful output. While it is not a sequencer, it does support full MIDI playback of what is written on-screen through whatever synthesizers or MIDI instruments you may have.

Because there have been so many new music programs introduced recently (see Paul Lehrman's article, "The Write Staff," October '88), there is a tendency among musicians to want to compare one with another in trying to decide which is best for them. I would say that the closest comparison would be with Mark of the Unicorn's Professional Composer, another high-end music notation and publication program that's been out for some time now. There are two major differences between Music Publisher and Composer that are apparent immediately: page layout and ease of data entry. Page layout is of prime importance, and this is where Music Publisher shines — it is page-oriented from the start. At last, a music program that lets you decide how the music will be laid out!

The first thing you see after launching the program is a Publication Format dialog box, asking you to define the page size you want to work with. There are three default sizes: A4, US Letter, and Classical, as well as a Custom option. You are then presented with a blank page with the margins shown in dotted lines and rulers on the top and left side, with ruler guides that correspond to the location of the mouse pointer. On the right side of the screen is a tool palette with 15 tools available — all the tools you'll need to create your document.

Sound familiar? It should if you've ever used Ready,Set,Go! or any other page-makeup program. It is this consistency with other programs and the Mac interface in general that gives



Graphic Notes' unique form of copy protection: The Presto keypad.

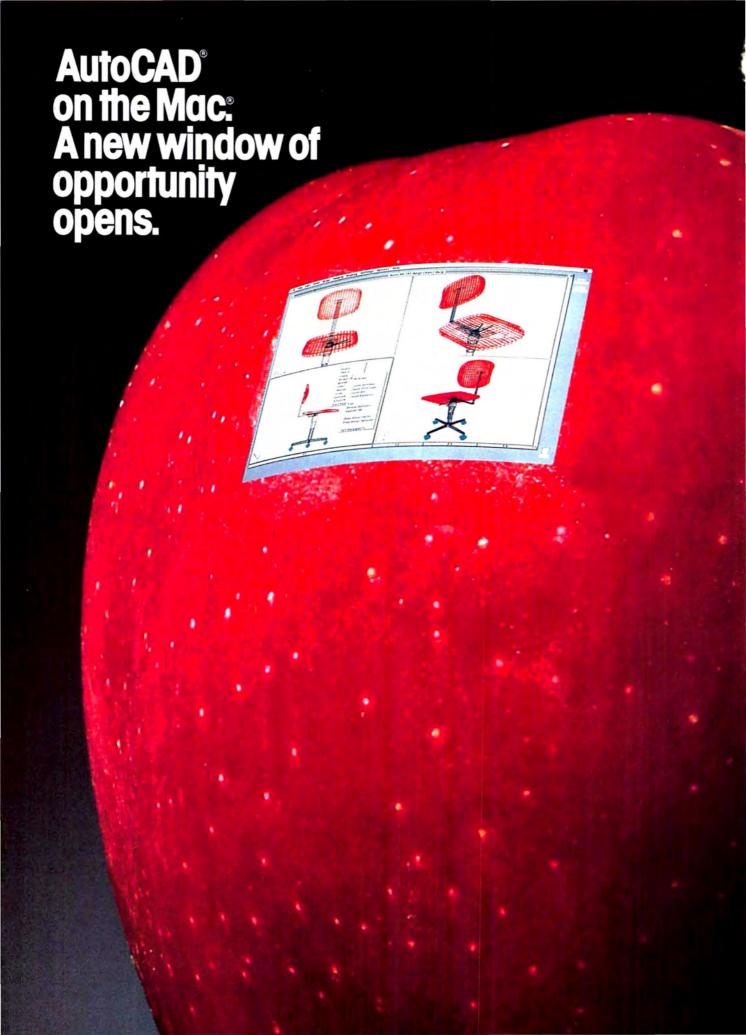
Music Publisher an edge on the competition. Choose the text tool to place a title and other information on the page; under the Type menu you'll find all the familiar listings: font, size, style, and even leading and alignment.

Before you can put notes to screen, you'll need to tell Music Publisher what kind of staff, or system, to use. The command Add a System produces a dialog box that allows you to pick from six predefined systems, such as Piano/Vocal or Melody, or one of your own that you might have created with the Custom System option. This is also where you get to pick the actual note size: small, standard, large, or big note. Next, put in the bar lines where you want them with the Bar Line tool. If you don't like where a bar line is, you can grab it and move it. After the page is set up, it's time to enter the music. Here's where the other major improvement, ease of data entry, becomes apparent.

Music Publisher has a unique way of achieving note entry as well as avoiding copy protection, and the solution to both is the Presto keypad. This is an extra keypad, about half the size of the regular Mac keyboard, that is included with the program. It is an ingenious solution to the problem of copy protection: You can make all the copies of Music Publisher you want, but without the Presto keypad, there is no way to get data onto the screen! With the Presto keypad, you can enter notes many times faster than before. It has four rows of keys that correspond to octaves, with the scales from left to right. You use your right hand to determine pitch using the Presto, and the left hand determines duration using the regular Mac keyboard. Graphic Notes even includes self-adhesive keycap stickers to place on your regular keyboard. I tried some informal tests and found that I was able to get music onto the screen eight to ten times faster than with Composer. This is an important fact: If you've got a real deadline to meet with big money riding on the next downbeat, you don't have the time to enter music slowly. If it's faster to do it by hand, why use a computer? Note entry with the Presto is just as fast as entering the music by hand in some cases faster.

Music Publisher uses its own screen and printer font called Repertoire and is in every way compatible with Post-Script. That means that all screen objects can be manipulated, as in pagemakeup programs. Don't like where the crescendo is? Pick it up and move it. Dynamic marking not quite right? Grab it and move it as well. Slurs and ties are no problem; Music Publisher uses true Bezier curves with handles in the middle as well as on either end. There are automatic ways to tie notes together, as well as a few options for automatic beaming of notes. Triplets and tuplets can be defined and activated with just a few keystrokes. Measure numbers can be added with your choice of font and size, and pick-up or odd time bars are no problem. If the notes start to look too close to each other or jumbled, which can happen on occasion, use the Custom Note Spacing option to take care of it - try the ratio of 89 to 35 and watch the result as everything proportions itself perfectly.

Putting lyrics to music, the bane of





AutoCAD, the world-standard CAD software, now runs on your Macintosh* II.

Your designs reflect the quality of your thinking. And your drawings reflect the quality of your designs. Put AutoCAD on your Mac II and nothing gets lost in the translation.

AutoCAD's extensive set of drawing tools enhances your productivity. Its effectiveness is proven every day by over 175,000 architectural, civil, construction, aerospace, electrical, cartographic, facility, industrial, manufacturing and mechanical design professionals around the world.

AutoCAD has been refined through ten major upgrades. You get menus full of powerful, high-precision drawing and editing commands, numerous drawing entities, and a multitude of easy-to-use features. You can window, zoom, fillet, scale, layer, annotate and associatively dimension, hatch, stretch and scale. And a simple click can undo anything or everything.

AutoCAD on the Macintosh also supports the features that have made Apple the acknowledged leader in user interface design, offering pull-down, tear-off, and pop-up menus,

complete support for Multifinder™ and the Mac windowing system, along with file dialog boxes to make access to your drawing files quick and easy. Clipboard support allows the transfer of AutoCAD drawings to a wide variety of Macintosh applications software.

A Better Perspective. AutoCAD is an advanced three-dimensional modeler that helps you solve design challenges on your Mac the way you would with physical prototypes. AutoCAD makes 3-D easy with user-defined construction planes, dynamic viewing and multiple viewports.

You can also model complex surfaces with AutoCAD using sophisticated tools such as tabulated cylinders, surfaces of revolution, ruled surfaces and Coons patches so you can represent surfaces accurately.

For even greater utility, AutoCAD provides entity handles that allow external applications to associate alphanumeric information, such as part numbers and capacity ratings, with graphical elements in the drawing. This associativity is creating an entirely new generation of useful third-party applications software.

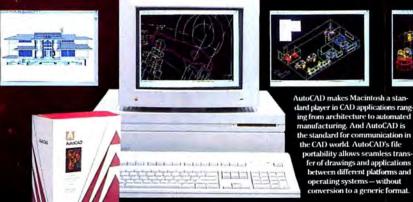
A Reflection of You. AutoCAD is an open-architecture system

including AutoLISP,* an embedded programming language that lets you program AutoCAD to reflect your way of doing things. Add your own menus to enter your own commands, write macros, develop custom symbols and drawing functions, or program standard procedures for document production and management.

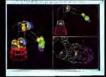
Hundreds of third-party programmers have used AutoLISP to develop entire systems that make AutoCAD perfect for applications ranging from chemical engineering to technical publishing. Many of these programs run on the Mac II and more are on their way.

Maintain Your Standards. AutoCAD is the most extensively used, most broadly supported, widely taught design software in the world. AutoCAD is backed by over 1,400 highly-trained dealers and 150 Authorized Training Centers in 60 countries. We'll make sure you get what you expect from your CAD investment. That's what standards are all about.

Opportunity knocks just once. The CAD software you standardize on today will determine your productivity for years to come. To see a demonstration at the dealer nearest you, call Autodesk at 800/445-5415, extension 25, at your earliest opportunity.









ing from architecture to automated manufacturing. And AutoCAD is the standard for communication in the CAD world. AutoCAD's file portability allows seamless transfer of drawings and applications between different platforms and operating systems - without

conversion to a generic format.



2320 Marinship Way • Sausalito, CA 94965

800/445-5415, Extension 25

Autodesk, the Autodesk logo, AutoCAD and AutoLISP are registered in the U.S. Patent and Trademark Office by Autodesk, Inc. Apple, Mac, and Macintosh are registered trademarks of Apple Computer. Multifinder is a trademark of Apple Computer.

The Desk With Magical Quality

Even Houdini would've been impressed with the new Manifesto Executive Desk/Workstation! With the mere press of a button or the turn of a key your computer lifts up, ready for work. Finished? Push the button again and down it goes, desktop flush! Your high quality executive desk transforms itself instantly into a hi-tech work station with your computer (Mac, IBM, or clone) safely inside the automatic pedestal.

Pedestal.
Your printer & supplies get
plenty of space in their own easy
glide drawer...it even
accomodates your
laser printer!

And here's some more magic... Quality! The Manifesto is hand-made of oak—not particle board. And each desk is hand-rubbed with a Danish oil finish for long lasting and functional beauty!

Oh yes...lest we forget. There's one MORE bit of magic in our bag of tricks:

FREE SOFTWARE!

Buy a Manifesto Executive
Desk/Workstation and we'll treat
you to \$395.00 worth of your
favorite software!

Just call our toll free number for details.



\$395.00 Software FREE w/purchase Free software, free call and a free fact-filled full color brochure! Call today.

Manifesto

1-800-446-5991 (outside CA) 619-466-5991 (within CA)

Or write: Sunrise Technologies • P.O. Box 1742 • 3715 Corona St., #6 • La Mesa, CA 92041

The Manifesto is a registered trademark of Sunrise Technologies. The Manifesto design patent-pending. Macintosh is a registered trademark of Apple Computer, Inc. IBM is a trademark of International Business Machines. Dealer inquiries are most welcome. Allow 2-4 weeks for delivery.

Please circle 55 on reader service card.

each other so that one program can't cause another to crash and one that offers the applications hooks to use to attempt graceful shutdown instead of total failure. These kinds of capabilities must be designed into the architecture, and a lot of effort must go into making it a workable system.

Apple should take the time to design this kind of long-overdue exception handling and reliability into its future operating systems.

Judging from the hints and leaks coming out of Apple, we know that we're in for some treats in the coming years. The Macintoshisn't stopped by the snowy woods but is instead moving rapidly into the 1990s. The software and hardware wizards will be working long into the night to improve the Macintosh hardware and its operating system. By adding capabilities such as those proposed in this column, they'll have some additional miles to go before they sleep. I hope Apple takes the time and trouble to give business users the kind of system that they need.

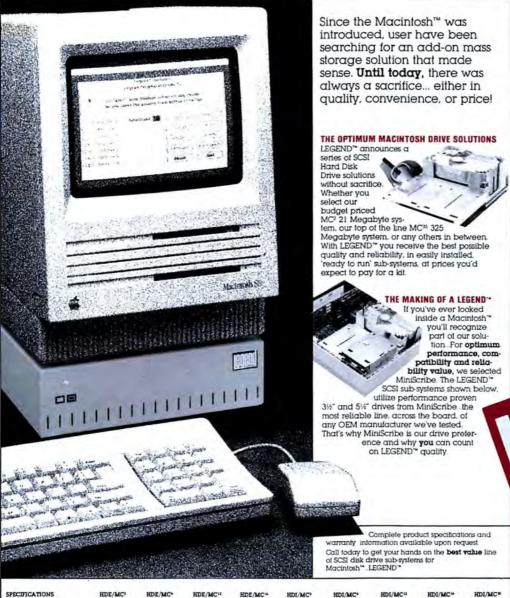
PINSTRIPE PICKS

Products worth looking at if you're using your Macintosh in business:

Silverserver (La Cie). Software that allows you to create file servers, remote file servers, and modem servers. Comes with Silverlining, an excellent disk partitioner. Definitely deserves a look if you have networked Macs.

QuarkStyle (Quark). Recognizing that desktop publishing does not suddenly make everyone a good designer, Quark has taken the technology of Quark XPress and blended it with examples of good design to create a template-based publishing system. You lose only a little flexibility to ensure good-looking output.

Illustrator 88 (Adobe). If you haven't checked this one out yet, you're missing something. The people who invented Post-Script have revised their popular Post-Script drawing program to include capabilities such as color separations. Excellent for producing high-quality graphic output.



54"HH

11500

35,000

10Mbs

YES

1900.00

54"HH

17ms

35,000

IOMbi

NO YES

YES

2150.00

21.3Mb

68ms

20,000

5 0Mb0

• SE 11

550.00

NO

YES

Form Factor

MTBF (POH)

rnal Moun

ernal Mounting w Profile External

1 Year Limited Warranty Suggested Retail Price Retail per Meanbyte

21.3MD

20,000

5 CMbd

700.00

NO YES

YES

42MD

30,000

8 OM hit

YES

950.00

All LEGEND™ SCSI disk sub-systems come complete, pre-formatted and ready to run. All you need to do is mount the drive, select the SCSI ID# and size the disk partitions (its so easy with our universal bracket, comprehensive manual and STORWARE™ automatic configuration software)

To solve the integration problem, our 3½" internal disk sub-systems use a universal mounting system that fits Macintosh™ II OR one and

two floppy disk Macintosh" SE systems (even with the expansion slot tilled). And for those applications where higher capacity is required, we offer 51/4" Internal sub-systems for the Macintosh™ II, with up to 325 Megabytes of formatted capacity!

For the Macintosh" +. SE or II requiring an external solution, we offer the identical quality and performance of our internal subsystems. Our low profile external sub-systems also feature MiniScribe drives and provide



formatted capacities up to 160 Megabytes!



6045 Variel Avenue Woodland Hills, CA 91367 USA 800/331-7498 • CALIF 800/826-2278 Exclusive National Distributor:

800/669-2226

Apple Maciatosh, Maciatosh*, Et and II are registered trademarks of Apple Computer Corp. Logend and A Legend in Our Own Time are trademarks of Legend. Peripheral Products, STORWARE is a trademark of Universal Mac Products for call other trademark and trademark of Universal Mac Products for call other trademark and properly of their respective manufactures. Legend Peripheral Products reserves the right to change prices, specifications and contributive substant actives.

1989 LEGEND" MU #88-056 All Rights Reserved

42Mb 28ms

30,000

8 CMbst • SE. II

NO

YES

825.00

54'HH

115M

17ms

35,000

10Mbs

YES

1800.00

514 HH

160Mb 17ms

35.000

IOMbit

YES

2050 00

54 TH

325Mb

16ms 30,000

YES

3695.00 1137

1.25Mb#



The Mac II Maximizer

\$299



MacSprint[™]II. The Cache Card.

MacSprint II is the \$299 cache card that fuels your Macintosh II with 32k of cache memory.

MacSprint delivers high performance to your computer by knocking out the system wait-states. With MacSprint, your Mac II will average a 22% performance increase to a maximum of 30%. No knocks, no pings, no Nubus slot.

MacSprint is the high-octane solution for your Macintosh applications. It will accelerate MacDraw II by 30%. Filemaker by 28%. Excel and Freehand by 25%. To name a few.

See your local dealer today, and say, "Fill it up! Cache only, please."

MacSprint is a trademark of Orchid Technology. Macintosh is a registered trademark of Apple Computer, Inc. All other products are trademarks of their respective manufacturers.

ORCHID (EUROPE) LTD.

Unit 5, Cartel Business Centre Stroudley Road, Basingstoke. Hants RG24 0UG, Great Britain tel: 0256 479898 Int'l: +44 256 479898 fax: 0256 64222 Int'l: +44 256 64222

ORCHID TECHNOLOGY

45365 Northport Loop West Fremont, California 94538 tel: (415) 683-0373 fax: (415) 490-9312



Please circle 65 on reader service card.

Mathematics Made Easy!



Milo is the first math processor that combines mathematical calculations with graphing and word-processing capabilities. Milo effortlessly describes a problem, solves it, and graphs your solution. Our WYSIWYG interface allows you to easily manipulate expressions with a click of the mouse. No programming language required! Easily move your results to any word processor or desktop publishing application. Milo is the essential tool for all users of mathematics.

Introductory Retail Price \$249.

Milo[®]

The Math Processor for the Macintosh®

PARACOMP

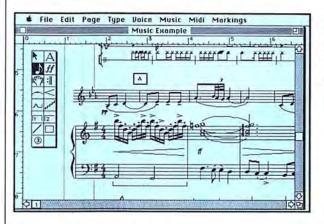
123 Townsend Street, Suite 310 San Francisco, CA 94107 (415) 543-3848

Works on all Macintoshes with at least 512K RAM.

©1988 Paracomp, Inc. Milo is a trademark of Paracomp, Inc. Macintosh is a registered trademark of Apple Computer, Inc.

Please circle 111 on reader service card.

Quick Clicks



All the tools you need to create a great-looking page of music are located on one tool palette.

Composer's existence, is now easy too. Music Publisher has three different ways to do it, and the result is that words or syllables are perfectly centered under the notes, and dashes between syllables are centered properly between the notes as well. You can also put in long underlines from one held note to another without messing up the lyric alignment.

Another thorny problem, for those with failing eyesight such as myself, has been the difficulty associated with entering written-out chords. Placing the pointer on just the right line or space when there are already three or four notes on a stem can get tedious quickly, but here again the Presto keypad comes to the rescue. It has a Chord key; press it and all notes typed will be on the same stem until you hit the space bar to go to the next beat! You'll never know how you got along without this feature.

Music Publisher uses the concept of voices to achieve multiple parts on one staff (stems up and stems down) or on different staves. Each voice can be assigned its own MIDI channel, and this is how playback is achieved. The program also is capable of complete transposition by part or piece, either keyspecific, by interval, or diatonic. Part extraction is also available, as is the ability to produce music examples for inclusion in books or other publications that require just a few measures of music and not a whole page. You can even make the staff lines disappear, leaving just the notes.

There's a lot to like here; the only drawback so far is the same one I've encountered in other music programs:

screen speed. I use a standard Plus with 1 megabyte, and the bigger my document is, the more everything slows down. Don't even think of using this program without a hard disk. You can use it with floppy disks, but you wouldn't want to.

If you are a music copyist, arranger, songwriter, band leader, or choir director, or if you write music and play an instrument other than a keyboard (there are people who don't even own a synth, you know), this is the program you've been looking for. However, Graphic Notes promises that, by year's end, version 2.5 will be out and will be able to handle the new MIDI File Specification. If you're a synth whiz, version 2.5 will enable you to take a MIDI file created on your favorite sequencer and format it into a Music Publisher file ready for publication.

- Ken Gruberman

Graphic Notes Music Publisher



List Price: \$595 (including Presto

keypad).

Published by: Graphic Notes, Inc., 200 Seventh Ave., Santa Cruz, CA 95062;

(800) 336-6683. Version: 2.0

Requires: 1 megabyte and second disk drive; hard-disk drive recommended. Compatibility: Mac II and MultiFinder friendly.

Copy Protection: None



From the company with a famous name...

EMAChail Gorbachev

Mikhail Gorbachev. Now there's a guy with a lot of responsibility on his shoulders. One mistake and he could find himself right up to his glasnost in trouble.

EMAC has a pretty good understanding of Gorbachev's situation. You see we're both world leaders concerned about security. But at EMAC, it's the security of your data. From 60 up to 155 megabytes of your data. That's why we build great tape back-up products

for the Macintosh.® They're more effective at bringing back dissident data than the KGB, and a heck of a lot more user friendly.

EMAC tape systems for the Macintosh. Taking the initiative for a more secure world.

EMAC – a full line of products and support from the company with an historical imperative.

EMAC

Stand alone and in combination with hard drive, 60MB. Impact tape, 155MB. Includes EMAC Tape Manager software

Please circle 151 on reader service card.

48431 Milmont Drive, Fremont, CA 94538 For information call 800/821-0806 ext. 2222 (in CA 800/821-0807 ext. 2222)

The essential Macintosh word processor.



Like its phenomenally successful predecessor, MacWrite* II is uncomplicated, graphic and easy to understand.

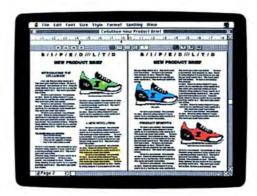
Now has all the essentials.



MacWrite II turns your writing into publishing. With up to ten columns, adjustable line spacing and the ability to crop and scale graphics. MacWrite II gives you font control you must see to believe (2 to 500 points). Plus footnotes that number themselves. Mail merge makes it simple to send one personal letter to a million close friends. And create custom stationery templates to use over and over.



The only thing more impressive than our new HyperCard-style Claris Help feature is how seldom you'll need to use it.



Keep more than one document open. Edit and preview your pages before you print them. And import color graphics.



Add frequently used styles to your menus and turn them on and off with keyboard commands.



An amazingly fast 100,000-word dictionary checks and corrects your spelling in a flash. MacWrite II includes a desk-accessory thesaurus, too.



A good leader must be a good communicator So MacWrite II reads and writes directly to all these word processing formats.

Introducing MacWrite II.



Quick Clicks

H A R D W A R E

MacBottom HD-70 Hard Disk

The HD-70 is the latest in PCPC's long line of MacBottom external hard disks and it shares the same very small case that every other MacBottom hard disk has used. Its footprint is exactly that of the Mac Plus or SE, and its height (including the rubber feet) is approximately 2¼ inches. There are small indentations in the top to hold a Mac or another hard disk securely.

The front panel has a green power/

activity light. It gets noticeably brighter with disk activity. The back panel contains the on/off switch, the power cord receptacle, a DB-25 SCSI connector (for chaining SCSI devices), and the built-in, 18-inch-long SCSI cable (which terminates in a standard male DB-25 SCSI connector the SCSI connectors built into Macs are female DB-25 connectors). It's nice having the cable already attached - there's no question about a bad connection — but extending that cable, if you should want or need to, is a real pain. Also, having a female DB-25 connector as the extra port, rather than the more common 50-pin Centronics-type connector, can cause un-

The HD-70 is sturdily constructed. It has a plastic case with ventilation grills on the top and bottom, and a built-in fan. This fan will please you—it's the quietest computer fan you're ever likely to come across.

necessary cabling complications when hooking up additional SCSI devices.

The hard-disk assembly (HDA) is made by Rodime (although that could change). It's a standard half-height unit that is neither particularly fast nor slow. It is a reliable unit, used by many other hard-disk manufacturers.

The unit is terminated internally, so an external terminator is not required. Getting to the terminators (if it's necessary to remove them) is not easy. The SCSI ID number is set with a mechanical switch on the bottom of the unit. The HD-70 comes preformatted, with a good selection of utility software on it. Units are shipped formatted with a 2:1 interleave, which is optimal for a stock SE. The manual suggests using that interleave for Pluses as well but suggests a 1:1 interleave if you're using a Mac II or a 68020 accelerator board.

The HD-70 comes with the latest version of Apple's System software, PCPC's Floppy Copy, HFS Backup, Eureka DA, LW SpoolInit and DA (for the LaserWriter), and SpoolInit and DA (for the ImageWriter). The System software is standard issue and includes Font/DA Mover so you can install the three DAs provided. Floppy Copy is a very fast and efficient disk copier. It has no copy-protection-removal functions. And it requires that the HD-70 be formatted with a special area (approximately 2 megabytes) reserved for it and the spoolers (all units are shipped with spooler and copy space already configured).

HFS Backup is one of the finest backup programs available. The version shipping with the HD-70 (version 2.02) is fast and versatile. However, it's a fairly old program and can no longer be considered state-of-the-art (those honors go to Redux and Disk-Fit). Eureka is a small file-locating DA. It uses highly optimized search techniques and is much faster and better than Apple's similar Find File DA.

Two spoolers are provided, one for the ImageWriter and one for the LaserWriter. They both consist of two parts, an INIT and a control DA. Both can be installed if you have both types of printers available. These are good, but not great, spoolers.

The manager software of the HD-70, SCSI Tools, can reformat at the interleave of your choice. The manager is a very powerful tool and can do damage if you don't know exactly what you're doing. But don't worry; the functions of the SCSI Tools are well explained in the manual, and excellent technical support is available (no 800 number, though). SCSI Tools can perform a wide range of diagnostic tests, provide lots of information about your hard disk, and do any necessary formatting and initialization chores.

Dangerous activities require that you enter a code, which you can get only by calling PCPC Tech Support. They'll stay on the phone with you and walk you through the procedures.

A 300/1,200-baud Hayes-compatible modem is available as a factory-installed option for \$200. It's worth considering if you frequently travel with your hard disk and require a modem for communications.

Two manuals are provided, one for the hard disk and most of the software and the other for HFS Backup. Both are adequate, although the hard-disk manual should be updated. Still, you should find all the information you need in them.

Why should you buy a fairly expensive hard disk like the HD-70, especially when you can get units of similar capacity (even using the same HDA) for much less? Reliability is one good reason. PCPC has been making hard disks of this basic design for a long time. They hold up well. And if something goes wrong, the Tech Support department is superb. It's also reassuring to deal with an established hard-disk manufacturer. The final reason is aesthetic — the HD-70 is deadly quiet. If it didn't have a power/activity light, you wouldn't even know it was on.

- Mal Emmett

MacBottom HD-70 Hard Disk \$\$\$\frac{1}{2}\$\$



List Price: \$1,995; 1,200-baud Hayescompatible modem, \$200 extra.

Manufactured by: Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Bldg. A., Tampa, FL 33634; (800) MACBUTT, or in Florida, (813) 884-3092.

Requires: Mac equipped with SCSI port.

Compatibility: Works with a SCSIcapable Mac; HFS Backup is Mac and MultiFinder friendly; requires HFS System software.

Copy Protection: Software is not copyprotected. PowerStation.
First among critics for desktop organization.

The new Suitcase II.
First in utility sales
from the moment
it was introduced.

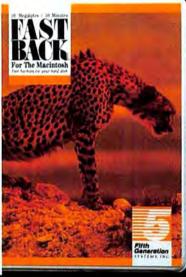
FastBack. First in speed among all Macintosh backup programs.

Pyro! First in screen saving entertainment.









FOR THE BEST UTILITIES THINK FIFTH FIRST.

SUITCASE II is the perfect utility for desktop publishers. It now allows unlimited access to fonts, desk accessories, FKEYs and sounds. Plus, now you can display fonts in their own typefaces right in the menu.

FASTBACK FOR THE MACINTOSH makes backing up a breeze for every hard disk user. Its incredible speed, automatic formatting and reliability assure regular backup.

PYRO! is a must for every Macintosh owner. A nifty, resident program that prevents screen burn-in damage.

POWERSTATION is ideal for hard disk

users who regularly work with multiple applications. It helps to organize the disk for quick, easy access to applications, documents and desk accessories.

To get the most out of their Macs, more and more users are choosing these four firsts from Fifth.



Fifth Generation SYSTEMS, INC.

To receive more information on these products call 800 873-4384

Please circle 164 on reader service card.

11200 Industriplex Blvd. Baton Rouge, LA 70809 (504) 291-7221



Telecommunications software for the Macintosh, a new version.

Soar to New Highs, Effortlessly

When Software Ventures set out to create MicroPhone, it had a simple mission: to develop the most intuitive communications software ever written. Indeed, when MicroPhone was born. it was universally hailed as a breakthrough in communications software. A product so friendly, it turned novices into experts. So sophisticated, it became, in the words of MacUser, a power user's delight.

MicroPhone is a legend. One of those precious software creations that single out the Macintosh as a superior computing machine.

With MicroPhone II, Software Ventures has set out to surpass itself: redefine power in telecommunications for years to come.

MicroPhone II is so revolutionary that PC Magazine was moved to say: "MicroPhone II is arguably the best

comm software ever written." We won't have it any other way. Micro-Phone II. The freedom to be yourself. At the top.

Critics' Choice

Stewart Alsop, P.C. Letter:

"MicroPhone . . . sets the standards that general-purpose communications software will have to follow."

The New York Times:

"MicroPhone is a breakthrough in communications software . . . "



2907 Claremont Avenue Suite 220 Berkeley CA 94705 415-644-3232

Let's Get Technical

MultiFinder compatible. Supports background file transfer and script execution. Offers a full-featured script language: variables, counters, and expression-analyzer for string and arithmetic operations. Scripts allow: control of all communications settings; screen addressing and text editing; filtering of incoming text.

Supports import and export of scripts as text files. Allows control of PBX's, Hayes and non-Hayes modems through flexible modem drivers. Runs at 50 to 57,600 baud. Emulates DEC VT52, VT100, and TTY type terminals. Mac II and LaserWriter compatible. Works with all Mac large screen monitors. Supports the extended keyboard. Built-in text editor. Includes Glue, licensed from Solutions, Inc.

MicroPhone is a trademark of Software Ventures Corporation. Copyright © 1988 Software Ventures Corporation.



Stop Taxing Yourself. Quicken, \$49.95

uicken* is the absolute fastest, easiest way to do your personal and small business finances. You'll slash time and effort every month, plus have perfectly organized financial records. Now instead of dreading tax time, you'll save even more hours, because Quicken links directly with the top selling Macintosh* tax software, MacInTax*

Forget Financial Hassle

Quicken is so automatic, it does your monthly financial work for you. It actually learns your regular bills. Just click to confirm the payment amounts on your auto loan, utilities, and other bills. Quicken does 14 bookkeeping steps and hands you the printed checks already addressed for mailing. All you do is sign them and seal the envelopes

Automate Your Taxes, Too!

Quicken saves you hours at tax time, because all your tax information is right at your fingertips. It prints itemized lists supporting tax deductions in just seconds. Or, let MacInTax quickly and accurately read income and deductions from your Quicken records and directly transfer that data to your tax forms. Click on any total and MacInTax displays the supporting list of every transaction from Quicken comprising that total.

Know Your Financial Situation in Seconds

Quicken gives you detailed reports such as budget vs. actual comparisons, income and expenses by category, accounts payable, accounts receivables, or P&Ls, on screen or on paper, almost instantaneously.

The World's #1 Selling **Financial Software**

Here's why Quicken is the world's most popular:

Quicken is a great program... Its combination of an outstanding implementation of the Mac interface, sophisticated keyword-searching techniques, and a readable, well-designed manual make it the industry standard. \$\$\$\$

-Ken Landis, MacUser

Absolutely the best small accounting program made. -Bob Schwabach, Universal Press Syndicate

No Accounting Mumbo Jumbo

Quicken is as easy as the pen and paper you use now. You'll see the familiar checkbook and check register right on your screen. The only thing that changes is how fast you finish your financial chores. This is bookkeeping that's totally hassle-free.

For Personal and Business Use

No other financial software provides more flexibility to handle the wide range of personal or business needs. Quicken is for service and manufacturing businesses, doctors, consultants,

Specifications:
Software Compatibility: Exports data in SYLK format for use in spreadsheets like Excel® Exports data to HyperCard®
Hardware Compatibility: All Macintosh with 512K RAM. All printers,
including laster printers. Also available for IBM and compatibles, Apple Ile,
Ile, Ile Plus, and IlGS.

Capacity: Unlimited number of bank accounts. Unlimited number of

Capacity: Unlimited number of income/expense categories. Maximum amounts to \$9,99,999.99

Other: Unlimited prize technical support. Not copy-provected. Checks are preapproved by all financial institutions in the U.S. and Canada. Sample checks and order form are enclosed in Quicken package.

designers and retailers, as well as for households. Quicken is ideal for anyone who wants relief from bookkeeping hassles.

Try Quicken FREE for 30 Days

Order Quicken today from the coupon below, or through our toll-free 800 number. If you're not completely satisfied with Quicken for any reason, simply return it for a full, no-questionsasked refund.



Quick Clicks

UTILITIE

S

RoundUp

RoundUp is a utility program that searches your files for a specified text string. It can search MacWrite, Word, WriteNow, Ready,Set,Go!, MORE, and all other text files. It does that.

Unfortunately, that's the only good thing I can say about RoundUp. It's a slow, awkward, overpriced performer. It also won't work on a Mac II or on a Plus or SE equipped with a 68020-based accelerator. It works for a few matches and then freezes if a 68020 is in use.

The program is presented very oddly. It's written in a language called APL.68000. That's not necessarily a problem, but you don't get a compiled

Searching

all your files for a
specific string sounds like
a great idea. For most
of you, the idea
is more useful than
the reality.

application. You get an actual copy of APL.68000 and a document called RoundUp! That means that when you run RoundUp you're running an interpreted program. Such programs are inherently slower than normal, compiled applications. And RoundUp sure is slow. Another problem with the language/document combination is that it takes a few more steps to launch RoundUp if you normally work from something other than the Finder.

The interface is crude and ugly. Whenever RoundUp finds a match (or hit), it stops and forces you to take



RoundUp in action. The horrible-looking fonts are the fault of the program. The System file had a complete complement of fonts.

action to move on. It doesn't keep a list of hits, so you have to sit and pay attention to what it is doing. That can take a while. The actual search speed depends on the type of files being searched, with text files being searched fastest and heavily formatted files, such as MacWrite documents, being searched slowest. Maximum search speed appears to be about half a megabyte per minute, which is less than half as fast as competing programs.

RoundUp works under Multi-Finder, but you have to remember to keep checking RoundUp. It doesn't run in the background when Multi-Finder is off (all of the competing programs do).

As a test, I started RoundUp on a search for a short string. A few seconds later I started the Locate DA (included in Central Point Software's Copy II for the Macintosh, Quick-Clicked in March) on a search for the same string (operating in its background mode). All went well for a few minutes until, apparently, both programs tried to search the same program at the same time. Since neither appears to use the file system in a normal manner, the result was a system crash. This was an abnormal use of both programs (I wanted to compare their searching speeds head to head). However, RoundUp never crashed while running as intended on a 68000-based machine.

The short manual adequately covers the few features of the program. However, its appearance is as inelegant as the rest of the package.

Searching all your files for a specific

string sounds like a great idea. For most of you, the idea is more useful than the reality. And, once you discover the slowness of all the text-searching programs (of which RoundUp is the slowest), you won't search that often. But if you really do want textstring-searching capability, get either Microlytics' GOfer (the quickest, most elegant, and most versatile program) or Locate (part of Copy II for the Macintosh). Locate is nearly as fast as GOfer, can search filenames as well, and offers the most for the least money. GOfer and Locate are both DAs that work in the background regardless of whether MultiFinder is on

There's no reason to get RoundUp.

— Steven Bobker

RoundUp



List Price: \$49.95

Published by: Virginia System Software Services, 5509 W. Bay Court, Midlothian, VA 23112; (804) 739-

Version: 2.0E

Requires: Mac 512K, 512KE, Plus, or

SF

Compatibility: Mac II unfriendly; MultiFinder friendly. Doesn't work with 68020-equipped machines (IIs and accelerators).

Application Size: 44K plus 124K for the necessary APL.68000 application. Copy Protection: None

... the clear leader DIMENSION

"Although this category, unlike spreadsheets and word processors, had a lot of new players this year, one seemed to us to be the clear leader.

4th Dimension, the powerful first product from ACIUS, takes the kudos."

MacUser, February 1988

'Congratulations! InfoWorld's readers have chosen

> 4th Dimension as the Product of the Year in the Macintosh Database Systems category." Jonathan Sacks, InfoWorld, April

"I can't imagine a datamanagement problem that you won't be able to solve with 4th Dimension."

Steve Mann, Macintosh Today
August II, 1987

"Users with no experience or interest in programming can build a barebones database in 4D's 'Design Environment' just by pointing, clicking, and naming files and fields."

"For searches and sorts - database operations that are performed interactively - 4D's performance curve is probably the best of the four programs (Omnis 3 Plus, Double Helix II, dBASE Mac, and 4th Dimension).

David Brandt, MacWEEK, January 19, 1988

"It will do everything you need, and then some, and will prove itself well worth the cost."

Jan L. Harrington, MacUser, November 1987

"I'm convinced that many users of other Mac databases and even PC databases will want to switch over to 4th Dimension."

Adam Green, Macworld, July 1987

"In general, Macintosh software is better than software for other per-

sonal computers...
4th Dimension redefines those high standards."

Andrew Gore, The Macintosh Buyer's Guide, Spring 1988 ■

"4th Dimension from ACIUS, Inc. of Cupertino, California, outshines the other databases we tested both in number of features and in rich database development environment."

Don Crabb, InfoWorld, January 11, 1988

Want to try it out?

For \$20, we'll send you a demo disk and comprehensive 50-page user's manual. Call today and find out what 4th Dimension can do for you.

- Relational database
- Multi-user
- Intuitive interface
- Graphics and pictures
- Automatic forms & reports

Yes you can!

\$20 Demo Offer 1-800-952-6300 Ask for Dept. A12





4th DIMENSION is a trademark of ACIUS, Inc. and ACI. All other brand names are trademarks of their manu-

10351 Bubb Road Cupertino, CA 95014 (408) 252-4444

Quick Clicks

WORD PROCESSING

QuickLetter

Working Software has an enviable software publishing record. Its previous offerings, Spellswell, Lookup, and Findswell, have been top rated. These products were brilliantly designed, nearly flawlessly implemented, and marketed well. Working Software's newest product, QuickLetter, continues that string.

QuickLetter is a DA for creating letters and envelopes. It doesn't pretend to be a full-blown word processor, and it isn't. It is a very nice letter- and memo-writing tool with some features that put much larger word processors to shame.

The basic QuickLetter window is the equivalent of your letterhead. It can contain your logo or any other graphics desired. You enter text using standard Mac text-editing commands.

Each writing window has its own menu bar and a well-designed, very useful ruler. You have full control over font, point size, and style. Left and decimal tabs are provided, as well as left, right, centered, and fully justified text positioning. Line spacing is possible in increments of a half line; the allowable range is 1 to 9.5 lines. About the only thing you can't have is multiple rulers. That means to set, say, the date flush right in material that is otherwise all flush left, you have to use a decimal tab. Tabbing to position various elements in your letters soon becomes second nature.

QuickLetter can read its own documents, special QuickLetter Stationery documents, MacWrite documents, and ordinary text documents.

QuickLetter Stationery consists of special read-only documents. These are style templates, and you can have as many of them as you want. One Stationery document can be designated as the default document that appears whenever you request a new document. This system works well — all low-level word processors should have a similar system (but most don't).

There's a small eye icon near the upper-right corner of the screen. Click

on it to go to Preview mode. Normally, text appears centered vertically in Preview, but you can move it anywhere on the page you want by clicking on it and dragging. Again, very nice. The Print Picture check box is a very thoughtful feature. It lets you see the exact area your letterhead logo uses, so you can properly position the text. QuickLetter doesn't print the graphic unless you tell it to (by clicking a check box), so you can use preprinted letterhead.

That brings up one of QuickLetter's real drawbacks. Your graphic is placed in the top-left corner of the page and can't be moved at all. If your

QuickLetter

has the best envelope addresser and printer in any word processor.

letterhead includes material at the bottom of the page, you need to create a page-sized graphic for it. This works since your text can be placed over a graphic, but it's an awkward solution. And entering a logo takes some real trial and error.

QuickLetter also does envelopes. In fact, it has the best envelope addresser and printer in any word processor, bar none. The easiest way to get to the envelope function is to hold down Option and click on the Preview eye. If a name and address in your letter are selected, they're automatically pasted into the address area of the envelope.

Envelopes can have graphic or text return addresses, and two special message areas (either graphics or text) are available, one at the top center and one at the lower left. These areas have fixed positions; they'd be more useful if they could be moved.

The Address Book, a powerful name, address, and phone number database, can also be useful for your letters and envelopes. The program can take any name and address information it needs from this one master file,

selecting, for example, only addresses and not phone numbers for salutations. It has a fast, effective search function. You can import data into the Address Book if the data is set up as a tab-delimited file with the right fields. The process is clearly explained in the manual.

The only part of QuickLetter that disappointed me was the manual. From little things like not having a title page to more important matters like not going into real detail on printing envelopes, it doesn't match the quality of the rest of the package. Still, QuickLetter is so well designed that the manual is rarely necessary.

Overall performance is excellent. Writing can be slow if there are large graphic areas, but graphics can be turned off temporarily to speed things up. Printing letters caused no problems on either a LaserWriter or ImageWriter, but printing envelopes on the ImageWriter took some practice. The LaserWriter printed envelopes perfectly.

QuickLetter has quickly earned a place on my most-used DAs list. In particular, I use its envelope creation and printing abilities several times a day. It's a slick piece of work.

- Steven Bobker

QuickLetter



List Price: \$124.95

Published by: Working Software, P.O. Box 1844, Santa Cruz, CA 95061-9907; (408) 423-5696; orders only, (800) 345-2888, operator 300; MCI Mail: WORKING; CompuServe: 70436,1342. Distributed by Mediagenic.

Version: 1.0

Includes: Working copy of Spellswell with small (60,000-word dictionary) and demo copy of Findswell.

Requires: Any Mac

Compatibility: Mac II, IIx, MultiFinder friendly

Program size: DA, 168K; runner application, 10K.

Copy Protection: None

The WriteNow difference: Ease, Performance, and...

	William Theaten		Marcal	Martin
	WriteNow 2.0	MacWrite 5.0	MS Write	MS Word 3.01
Spelling checker size	100,000 words	100,000 words	80,000 words	80,000 words
Font size range	4-127 pts.	7-24 pts.	7-72 pts.	2-127 pts.
Maximum recommended document size (in pages)	Over 2,000	240	50	500
Number of open documents	Unlimited *	1	30	30
Mail merge	Yes	No	No	Yes
Number of editable, on-screen columns (WYSIWYG)	4	1	1	1
On-screen auto-numbering footnotes	Yes	No	No	No
Automatic repagination	Yes	Yes	No	No
Graphics in same line as text	Yes	No	Yes	Yes
Multiple headers and footers	Yes	No	No	Yes
Extensive Undo	Yes	No	No	No
Variable line spacing (in points)	Yes	No	No	Yes
Selective font, size, style, and ruler changes	Yes	No	No	Yes
MacUser Magazine's Best New Word Processor	Yes	No	No	No
Search for a word	2.4 sec	7.6 sec	9.5 sec	9.7 sec
Spell Check document	6.3 sec	2 min 34.0 sec	2 min 2.3 sec	1 min 48.0 sec
Copy & Paste large area	6.8 sec	1 min 0.9 sec	12.4 sec	12.3 sec
Change font size of document	10.7 sec	50.2 sec	17.6 sec	16.2 sec
Change font of document	10.8 sec	37.1 sec	14.1 sec	15.2 sec
'Save As' a 12-page document	3.6 sec	9.4 sec	20.3 sec	19.6 sec
Retail Price	\$195	\$125	\$175	\$395
Happy Users	Yes	?	2	2

... Happy Users!

Our users love WriteNow—a claim our competition can't

easily make for their products.

How do we know? Because our users tell us—on registration cards, on the telephone, on bulletin boards, and in letters.

We've heard dramatic stories about how WriteNow has significantly reduced training and support costs. And how clean, fast, and enjoyable it is to use. And how WriteNow got the job done when our competition sputtered.

You see, at T/Maker we feel a great word processor is more than just a stockpile of features. It's the *usability* of those features—how easy they are to learn and use, and how they *feel* under your fingertips when doing real work.

And from their overwhelmingly terrific response, it's

clear our users agree.

WriteNow 2.0 is the user's choice for best Macintosh word processor—and we'll show anyone our customer registration cards to prove it!

What's new with WriteNow 2.0? Over 50 New Features And Improvements!

Mail Merge • 100,000-Word Dictionary • Character and Word Count Direct Opening and Saving of Text, MacWrite, and RTF (Word Option) Cursor Key Support • Windows Menu • Decimal Tabs Case Change • Hide Pictures Option • "Smart Quotes" Fixed Line Spacing • MultiFinder/Network Compatibility • and More! T/Maker Company

determined by Macintosh system constraints

T/Maker Company 1390 Villa Drive Mountain View, CA 94041 (415) 962-0195 Attention white the post of the state of the

© 1988 T/Maker Company. All rights reserved. WriteNow is a trademark licensed to T/Maker Co



hen I waxed somewhat euphoric over Apple's Knowledge Navigator in my January column, Inaively assumed — if I thought of it at all — that other opinion was divided between "Where can I get one?" and "Who cares?" Who'd have thought there'd be people who view this asyet-nonexistent device and its kin as something like Friday the 13th, Part XII: Freddy Gets a HAL 9000. I was wrong.

There is apparently a large group of people who have taken it as their charter to view new technological developments with, if not alarm, then at least a jaundiced eye. And, to be fair, what I know about the November 1988 Stanford meeting of Computer Professionals for Social Responsibility, at which the

Knowledge Navigator came under fire, I learned from two articles on the front page vaguely recalled papers by other people, and nifty graphics. The Computer Professionals don't like the way our wayward prof does all this without necessarily reading any of it himself. He lets the machine do it. CONTROL PANEL

I would like to offer a rebuttal to both the broad and specific issues.

Every new technology comes with the potential for misuse; ask the gentlemen from the Manhattan Project or the first casualty of gunpowder. The real problem, however, lies in the human rather than the technological element. And until further notice, we can't get away from that state of affairs. What we can do is take steps to limit the potential negative impact as best we can. If you want to see the result of what blaming the technology itself can do, I recommend A Canticle for Leibowitz by Walter M. Miller, Jr.

The Shroud of Turing

of the San Jose Mercury News "Sunday Computing" section. (On the other hand, this column is being edited by someone who was in attendance, so it should all balance out.) The cause of the discussion appears to have been the Apple video

in which a professor has a complex discussion with his computer, via a video image of a guy who would do well to avoid bow ties in future appearances. At one point, both the computer's persona and a live picture of a human colleague are on-screen simultaneously. And there's the rub: Just by looking at the two windows, it's impossible to tell which image is hardware/ software based and which is wetware.

If you haven't seen this video, what you have to keep in mind is that the computer agent is not just some clown delivering rote information. The talking head intercepts calls, reminds the professor of lecture times when he seems to be unsure, and produces reams of information and graphics on request. This isn't just the next generation of Talking Moose tied into your answering machine.

The group seems to have two main objections/reservations/fears: One is the feeling that this kind of technology has the potential for misuse by everyone from the government to telemarketers. This is the invasion-of-privacy issue. Humanlike telemarketers, for instance, without (I quote the *Merc* here) "true ethics or value systems," will be ringing up all the time, trying to sell you things you didn't even know existed.

The other objection is to the professor's own (presumably unethical) approach to putting together a lecture. The Knowledge Navigator does yeoman's duty pulling up hard data, As for the evil electronic telemarketers, they are already with us. They visit my answering machine on a regular basis; their machine talks to my machine. The only new drawback I can see to the computer version is that I'd have to look at them as well as listen. At that, I'd prefer them to TV evangelists.

And after six years as a graduate student, I can reliably tell you that professors who personally research every point of their

lectures and read everything in their field are a mythical breed. In the first place, there are few fields in which any one person could keep up unaided. That's one of the reasons we invented computers and databases. In the second place, hell, a significant number of tenured professors don't even bother to give their own lectures. The ideal against which the Apple professor fails exists rarely, if ever.

While I find these particular arguments (as reported by the Merc) silly, the Computer Professionals for Social Responsibility are on the money in terms of what I take to be their broader purpose. The history of technology supplies ample reason for keeping a suspicious eye on new developments - and not just in the computer field. On the other hand, human history generally demonstrates the futility of fighting extremes with extremes. Why, I can remember (she says, tousling the rumpled curls of her grandchilike any
new
technology,
Knowledge
Navigator has
the potential
for misuse.



By Louise Koiil

DRIVE INTO THE FUTURE

Removable • Erasable • Optical • 650 MBytes

REO-650™... the next generation in data storage, is setting a new standard in mass storage and file server technology.

Imagine the capacity of a 650 Mbyte removable optical disk combined with the flexibility to erase and rewrite files up to a million times.

This major achievement in Magneto Optical Technology represents Pinnacle's commitment to the future.

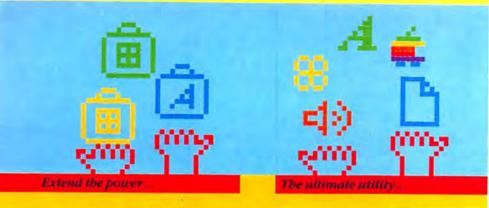
REO-650™ software drives your Macintosh™ on LAN, in two directions MAC/OS or A/UX.

Take your drive into the future by calling or writing.

Pinnacle Micro Inc., 15265 Alton Parkway Irvine, CA 92718, USA. in CA (714) 727-3300 FAX (714) 727-1913

(800) 553-7070





Teach Your Mac To Juggle

Font/DA Juggler™ Plus

Juggling fonts, desk accessories (DA's), FKeys and sounds may be a feat for some utilities—but not for Font/DA Juggler Plus.

With an agility that would amaze even the keenest eye, Font/DA Juggler Plus provides unlimited access to fonts, DA's, FKeys and sounds without having to install them in your system file and eat up valuable memory space. In fact, Font/DA Juggler Plus sets the pace that similar utilities follow. For example, Font/DA Juggler was the first to:

- · Provide 100% Multifinder compatibility
- . Automatically reopen user-selected files
- · Incorporate a view function to inspect files
- · Display sample fonts in nine styles
- · Resolve numbering conflicts
- · Network downloadable printer and screen fonts
- Merge screen font style variations into one family
- . Convert fonts to the new type NFNT
- · Font Compression

Font/DA Juggler Plus continues to surpass even the newest release of its nearest competitor (...II) with the following exclusive capabilities:

- Display and print a font or list of fonts in hundreds of size and style combinations
- Copy and renumber Fonts, DA's, Fkeys and Sounds.

So, if your Mac could use juggling lessons, put Font/DA Juggler Plus to work on your system and sit back and enjoy the show.

Still only

\$59.95

MasterJuggler[™]

Add applications, windows and sound play to the talents of the popular Font/DA Juggler Plus and you have the amazing MasterJuggler. Now, one utility has the expertise to provide comprehensive management of fonts, DA's, FKeys, sounds, applications, windows and sound play.

In addition to being first to compress sounds, MasterJuggler has an extensive list of exclusive features including the ability to:

- Open applications and documents without returning to the finder
- Open multiple applications or play multiple sounds with single commands
- Switch between open applications from a popup menu under MultiFinder
- Hide the current application windows before switching under MultiFinder
- Bring to the front any selectable window in the open application via a pop-up menu
- View font faces and sizes in a file before or after opening the file
- Display and print name or number conflicts among the available fonts, DA's, FKeys and sounds
- . Set the default application font
- Assign sounds to seven different Macintosh operations and assign application—and alert specific sounds
- Play random sounds and continuous sound
- Convert digitized sound files into Macintosh and HyperCard sound resources

So, watch the amazing MasterJuggler at work and see how easily your Mac learns to juggle even the toughest situations.

Suggested Retail \$89.95
Please circle 56 on reader service card.

garden-variety, computer was viewed with alarm. They were going to stunt our creativity, blight our souls, and turn us into a race of machine heads. (OK, OK, VCRs may have actually done that, but that's another issue.) You can

dren) when your common, or

that's another issue.) You can still easily find apparently normal people who are chronically suspicious — not to say paranoid — about anything to do with computers. Except for a few cases, most of

computers
were going to
stunt our
creativity, blight
our souls, and
turn us into
machine heads.

whom now make eight-figure incomes, none of us has been seduced away from the rest of life by our computer.

For those on the jury who are still out on the Knowledge Navigator, just look at it as a larger, chattier edition of a pocket computer, like the Sharp Wizard.

It is imperative that we take responsibility for the uses to which any new advance is put. In the implementation of new theories and new technology, our wisest course is a cautious one; in their discovery, abandon. It is in the neglect of either caution or invention that the problems arise.

As for one member's fears of the potential for confusing humans and computer-generated talking heads, I think we'll manage. The disappearance of cigarette ads from TV has established a solid precedent for legally restricting what kinds of things are allowed to appear in various media. And if we happen to run across an "artifact" that we can't tell from a human, then he or she has passed the Turing test and the objection is vacuous — it just won't matter.

And now, if you'll excuse me, I'm off to see my Wizard. ■



The MacWarehouse technical staff and the pub-

lisher of the popular Power User's Manual have put together a great new disk of utilities, desk accessories and applications. THE POWER USER'S TOOL KIT. Seventeen great programs, including a powerful word processor that you can install as a desk accessory.

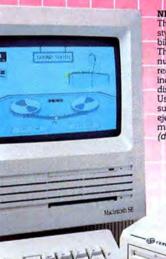
MaNVAREHOUSE

some authors ask that you send them a small fee (\$5-\$25). Many of the programs are absolutely free. All of the details are explained on the disk, which is yours to keep anyway.

FREE CATALOG

You'll also receive our brand new 1989 catalog. Hundreds of new products, product reviews and updates. Plus answers to all you questions about compatibility, copy protection and features.

Take a look at the MacWarehouse specials and call us with your order to receive your free catalog and THE POWER USER'S TOOL KIT.



NEW 800K Drive (Cutting Edge)
The Cutting Edge 800K disk drive's attractive styling, quiet performance, and high-tech reliability make it our most popular lloppy drive. The drive uses ASIC technology to reduce the number of parts, increasing reliability and reducing weight. Features an LED light to indicate disk access and a hinged door over the disk insertion slot to keep the mechanism clean. Uses standard Apple formatting routines and supports the Macintosh's standard software eject features. Features manual eject mechanism also. One year warranty. (disk drives) \$175.



P.O. Box 1579 Lakewood, NJ 08701

I don't need to order right now, but please RUSH me my FREE copy of the brand new MacWarehouse Catalog.

ADDRESS

CITY STATE

MUD9

APT#

MONDAY THRU FRIDAY 8A.M. TO 11 P.M. (Eastern Time) SATURDAY 8 A.M. TO 8 P.M. (Eastern Time)

8 A M to 8 P.M. (Eastern Time)



Inquiries: 201-367-0440 Canada: 800-255-6447 FAX # 201-905-9279

NOW OPEN SUNDAYS!

FoxBase+/Mac 1.1 (Fox Software) FOXBASE+Mac The most talked about relational database manager for the Mac Provides extraordinary execution speed, an elegant Mac Interface for ease-of-use and complete The state of the s POX SOLT

Macintosh SE

SuperPaint 2.0 (Silicon Beach Software) freedom of Paint and the on of Draw in a single program!

trable arrows. Mix fonts, style lizes. Rotate text and objects. for giving clip-art a professio look. (graphics) \$129.

CHOOSE MacWAREHOUSE. .

dBASE compatibility for transferring applications from the PC. Form generator can create any data input/out-

put form imaginable.

Application generator reduces program

development time

for beginners and experts alike. Runs

on SE, Plus, or Mac II with 1MB of memory. (database) \$208.

SUPERPAINT

For price, quality and service you won't find a better source for your Mac needs. If you don't see it here, give us a call. Most likely we'll have it in stock. Our sales representatives are here







couple of years, the best and most useful trade shows I've ever attended: well-timed; well-produced; large

MAINSTREA MA C

enough to achieve a critical mass of new ideas and new products; small enough that you can see and comprehend. By contrast, the August Macworld Expos in Boston are disjointed, sloppy, infuriating, crowded, badly produced in the wrong halls in the wrong corner of the country. But that doesn't mean a MACdex in parallel with Comdex is a better answer. Spring Comdex moves this year from Atlanta — where it had been dubbed "SwelterDex" — to Chicago's McCormick Place, one of the best trade-show facilities in the country. That may help some.

But grafting a mini-Comdex focused on the Macintosh onto the hind end of "the real thing" is still a dumb idea. It demeans the Mac market, misunderstands that market's needs, and seems unlikely to endure. Nearly every Mac vendor I've spoken with agrees. Too bad they won't speak up in public. [For another

Growing Pains

eaders often ask how I find so many things to write about. The truth, I confess, is just the opposite: Every time I sit down to write one of these essays, a dozen different ideas contend for this one small space. In the Mac universe it's a surfeit of ideas we face, rather than a scarcity. This time, let me touch more briefly on several of the items bubbling to the top of this rich broth.

MACDEX IS COMING

You may have read that Shelley Adelson, the promoter behind the Comdex series of personal computer trade shows, has announced that he'll be running a MACdex show concurrently with future Comdexes. I may be alone in this, but I think MACdex is a terrible idea. Its existence confirms what has been clear to anyone who's strolled the aisles of the last four semiannual Comdexes: These shows are for IBM PCs and clones, with the Mac taking a seat waaaay back in the bus. There is a lesson here about Mac dealers' and Mac users' and Mac buyers' interest in joining the 100,000 or so people who come to Las Vegas each winter and the 50,000 to 60,000 who come to Atlanta each spring to fight each other for cabs. It's silly for those principally interested in Mac hardware and software to subject themselves to the orgy of self-abuse that Comdex has become. And so they have been, in the comic's line, "staying away in droves." In part, Adelson's MACdex announcement is a reaction to the success of Mitch Hall's shows. In part, it's a natural grab for turf in the intensely competitive trade-show business. But in the largest part, it's a stellar example of simply not understanding a market.

The January Macworld Expos are elegant, useful, fun, and well-situated in San Francisco. They have been, over the past

point of view, see this month's installment of The Macintosh Analyst by William Zachmann. — Ed.]

Pssst: Wanna get rich? Become a Mac programmer. Actually, I've got that in the wrong tense. Because to make a potful of dough as a hired-gun Mac programmer, you should have be-

come a Mac programmer a couple of years ago. Because right now the action in the market is for "experienced" Mac programmers, who are difficult to find and astonishingly expensive. I've spent a lot of time lately talking with software developers who tell me they'll pay almost anything to get a really solid Mac programmer into their shops. Where once making it big as a programmer meant working in a garret writing some magical code, then selling or licensing that program to a Big-Time Software Publishing Firm - or starting your own company, making the program into a modest hit, then selling the whole company to aforesaid BTSPF-today the salaries being paid to skilled Mac programmers are so high they look like professional baseball salaries, Good Mac programmers can easily earn \$60,000 to \$75,000. Better ones hit \$90,000. And a lot of very

Salaries being paid to skilled Mac programmers are so high they look like pro baseball salaries.



By Jim SEYMOUR

A P R I L 1 9 8 9 M A C U S E R 75



Quality PostScript® display faces for Mac or IBM* Now available in the following sets:

Quill Pack - \$160

Gregorian & Dorovor-Italie Gazelle. Kells & Weach

Headlines - \$225

Bodoni Ultra-Italic

Bodoni l'Itra Condensed-Italic Sans Serif Bold—Italic Sans Serif Bold Cond.—Italic Sans Serif Extra Bold—Italic Sans Serif Extra Bold Cond.—Italic

Classic - \$300

PILZ-Condensed & RIGHT BANK Monterey-Italic, Bold, Italic Monterey Medium & Gatsby

Regency Script of Calligraphy Prelude-Light Stant, Bold, Stant

Distinctive - \$300

Gregorian & Dorovar-Icalic
Gazelle. Ketts & Meach
Jott -Quick
JottLight -Quick
Paladin & Abilene
Desperado & Dry Gulch
Collegiate
CollegeBlack Owithing

Modern - \$300

Coverty Script
Zephyr Script
Micro-Italic, Bold, Bold Italic
Micro Ext.-Italic
Micro Ext.-Italic
Galileo-Italic, Bold, Bold Italic
Campanile & MIC 6000 801
Alexandria-Italic Bold, Italic

Individual fant valumes available for \$89.95 each. Complete library of 22 valumes (84 fants) \$1000 "IBM PC fants are packaged with printer installation software for Ventura Publisher" and PC PageMaker

Orders: (800) 331-4321 (800) 851-1986 in CA Information: (408) 624-8716



Casady & Greene Inc.
P. O. Box 223779, Cormel CA 93922
FAX: 14081 624-7865

Please circle 174 on reader service card.

good Mac programmers are earning well over \$100,000 a year as employees of the big software shops.

Reality has set in at those places, and they've discovered that, as easy as the Mac is to use, it's damned hard to write sophisticated programs for. Unlocking all the toolboxes and unearthing all the skeletons take a long time.

And there's no easy conversion process from DOS or Cobol or UNIX or youname-it to the Mac world: It ain't like nothin' else. So those sky-high salaries

ho's wooing
Mac software
people in a big
way? Big Blue,
Ashton-Tate, and
Lotus, that's who.

are likely to continue. If I had a smart kid.... Take a look at the Sunday employment classifieds in the Boston Globe or the San Jose Mercury News or San Francisco's Examiner or Chronicle. You'll see some very big names in the software business in there wooing Mac programmers. You'll also get to do a little tea-leaf reading, too, as you spot earnest ads from the likes of Ashton-Tate and (gasp!) Lotus, pledging their troth to the future of the Mac and offering some amazing deals.

A PATCH OF BLUE

Speaking of wooing Mac software people, guess who's also doing it in a big way? Big Blue, that's who. (Try saying that three times fast.) IBM has a new "business unit" (IBMese for something larger than a department, smaller than a division, and slower than you'd believe) that is supposed to attract software developers to produce application programmers for the new Presentation Manager version of OS/2. That's the graphic interface version of OS/2, a bastard relative of

The BIG Thesaurus

Contains over 100,000 root words from the Merriam-Webster Collegiate Thesaurus. Inserts replacement words directly into your document. Compatible with Multifinder and Hypercard. (spelling) \$53.



BASF 3.5" Double Sided Double Density

High capacity diskettes with no capacity for error. Every bit, every bite on every track of each BASF 3.5" Diskette is certified 100% error free. Warranted for life. (media) \$17.



ALTECH MIDI Interface

Have your Mac playing music in no time. Simply connect the interface to your printer or modem port and you are ready to hook up your favorite MIDI synthesizer. Complete with cables and program disk. Works with all Mac MIDI software. Adapter required for Mac 128/512. (music) \$59.



Spelling Coach Professional Complete on-

line spelling and reference system includes Merriam-Websters's 158,000 word dictionary. 245,000 synonym thesaurus, hyphenation, and a dictionary with 85,000 real definitions. (spelling) Call.

Everex	
EMAC 20D (hard drive)	.520.
EMAC 20D Deluxe (O footprint)	
EMAC 40D Deluxe (O footprint)	. 995.
EMAC 60T (tape backup)	. 895.
EMAC FS-102	
Impact Hard Drives	.Call.



MAC - 101 Keyboard (Data Desk)
Features 101 keys including a
numeric keypad, a separate T-shaped cursor keypad, Cancel Key, Option and Command keys at both ends, definable function keys, plus scrolling, page control, and zooming keys. Comes with free macro software and manufacturer's two

year warranty. (input/output) 145.	
La Cie Ltd.	
3.5 Mounting Kit w/SilverServer	99.
Cirrus Drive Kits	Call.
MiniScribe	
20Mb Raw Int. Drive Kit	379.
45Mb Raw Int. Drive Kit	549
Mobius	
MultiScreen Video Card	349
PCPC	0 10.
MacBottom HD21 (SCSI)	659
MacBottom HD32 (SCSI)	
MacBottom HD45 (SCSI)	
MacBottoms w/Modem	
	Call.
Peripheral Land, Inc.	
Infinity Turbo 40 Meg	1299.
UniMac	
3.5 or 5.25 Int. Mounting Kits	
Storware	69.

MODEMO

MODEMS
Abaton
InterFax12/48329.
Best Data Products
SmartOne 2400/1200 with cable
and software169.
EPIC Technology
2400II Internal Modem315.
Everex
EMAC 2400225.
Hayes
Smartmodem 1200299.
Smartmodem 2400449.
Smartmodem 9600 (V series) 985.
Migent
Pocket Modem (ext. 300/1200 baud)115.
Prometheus
Promodem 2400309.
Promodem 2400M 199.
Shiva
NetModem 1200359.
Supra
Supra Modem 2400149.
US Robotics
Courier ModemsCall.
BLANK MEDIA
B.A.S.F.
DS/DD (box of 10)17.
Sony
DS/DD (box of 10)
SS/DD (box of 10)13.
Thin tim to time tim

INPUT/OUTPUT

Cutting Edge CE-105 ADB Keyboard125.

DeskPaint 2.0 and DeskDraw (Zedcor)

The Mac's most powerful paint DA now bundled with the Mac's most powerful draw DAincludes Auto-Trace, Browse and on-line help. MacPaint, compatible. (graphics) \$69. ZBasic 5.0 (Zedcor)

New and improved version - 256 colors, all toolbox routines and MS basic conversion program now bundled with The Program Generator, a drawlike editor that takes the grunt work out of writing REAL Macintosh applications

(language) \$99.

Seikosha America

DataDesk
Mac 101 Keyboards145.
Kensington
New Turbo Mouse119.
Koala
MacVision 2.0 219.
Kurta
IS/ADB Tablet259.
Cordless 4 Button Cursor65.
LYNX Computer
Turbo Trackball (512/Plus or Se/II) 69.
Mouse Systems
A+ Mouse (512/Plus or SE/II) Call.
New Image
MacScan (flatbed) 1749.

Seikosha Printer (dot-matrix) 235.

Impact Hard Drives (Everex)
The EMAC Impact Hard Drive series features high speed 19 ms performance, external SCSI addressing, external termination, whisper quiet operation and a compact, slim-line chassis 2 1/2 x 6 x 10 1/2 in.. (disk drives) EMAC Impact 60 MB or EMAC Impact 40MB Plus. CALL.



ACCESSORIES

ACCESSORIES
Amaray
MediMate Flex Pac12.
Computer Friends, Inc.
MacInker (IW & IW II)41.
Ergotron
MacTilt or MacTilt SE68.
Mouse Cleaner 360
I/O Designs
ImageWare II Carrying Case49.
ImageWriter LQ RibbonCall.
IW II Ribbons-Black or Color Call.
Macinware Plus Carrying Case 64.
Macinware SE Carrying Case 75.
Kensington
Anti-Glare Filter33.
Apple Security Kit34.
Mac II Stand w/Cable Kit65.
MasterPiece Mac II
Modem/FAX Protector 2025.
PowerTree SurgeProtectors Call.
System Saver64.
Mobius Products
Fanny Mac QT 65.
SE Silencer
Omnium Corporation
Mac Desktop Workstation75.
Orange Micro
Grappler L/Q or LSCall.
Tarqus, Ltd.
Deluxe Plus/SE-XKB Case (black) 69.
ImageWriter II Case (black)49.
Mac Plus/SE Case (black) 59.
mad . ind or odde (black)

I'm Kerry, call me at:

MacVAREHOUSE

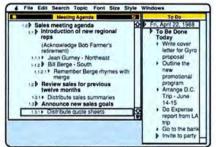
1-800-255-6227

OVERNIGHT DELIVERY: ONLY \$3.

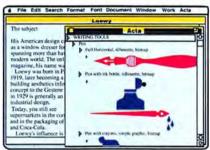
If you're already a MacWarehouse customer you know that nobody beats our service. Our helpful telephone staff is standing by, seven days a week. Place your order by 5:00 pm Eastern time (weekdays) and it's processed immediately for overnight delivery. Call us toll free right now.

Please circle 13 on reader service card.

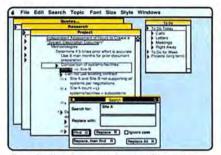
For jotting, sorting, listing, planning or just outlining your success



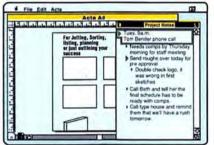
Enter words or pictures as motherdaughter topics. Drag to rearrange.



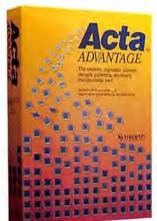
Use the desk accessory any time or work in the application (they use the same files.)



Sort, find/replace, mix fonts within topics, page breaks, page preview, print to disk, save as various formats.



Highly recommended for preliminary writing, presentation planning, agendas, simple databases, any typeof organizing.



Thinking, planning, organizing...success is built one step at a time. For any endeavor, your best first step is the simple outlining method of Acta Advantage. Macworld editors named Acta their "favorite desk accessory." MacUser gave it 4 1/2 mice as "one of the absolute best outliners available."

Now there's Acta Advantage, desk accessory and stand-alone application. Just \$129 wherever you buy software.

Symmetry

761 E. University Drive • Mesa, AZ 85203 800-624-2485 (In AZ 602/844-2199)

Acta and Acta Advantage are trademarks of Symmetry Corporation. Macintosh is a registered trademark of Apple Computer Inc.

Please circle 43 on reader service card.

Microsoft Windows. And where do you think IBM is going for Presentation Manager applications? Deep into the world of Mac software, that's where.

IBMers active in this unit are remarkably candid about their goals. "The Mac people know how to write good graphics-interface software; they understand it," one told

me. "And besides, they're doing the most interesting applications today, anyway." Ahem. Sounds like Willie Sutton when a reporter asked him why he robbed banks. Perplexed, he looked at the reporter and said, "Because that's where the money

ohn Sculley's off-the-record saber rattling has kept Mac developers away from Presentation Manager.

is." But almost without exception, Mac developers aren't buying. To say that their reaction has been cool would be an understatement. They say there's no market for Presentation Manager applications yet; that the growth in the installed base of IBM-style PCs powerful enough to run the resource-hungry Presentation Manager version will be slow for years to come; and that — in the end — they can't afford the opportunity cost of diverting inherently scarce resources (read: those high-priced Mac programmers) away from developing for their bread-and-butter Macintosh marketplace.

Sounds as if John Sculley's off-therecord saber rattling a few months ago, intended to discourage Mac developers from taking their Mac interface skills over to the IBM camp, did the job. Or maybe it was just the market: OS/2 still looks like a slow-burn/slow-build product — while the Mac market continues to explode.

PINSTRIP

ints of things to come have been slipping out from Apple. John Sculley has been the primary leak, and, since he's the boss, no one can complain. Sculley doesn't always just hint, either; sometimes he minces no words. Like when he said that Apple will ship a laptop in 1989 but not in large quantities, and that the holdup has been finding an acceptable

screen. Other Apple employees have also let some hints slip. although Apple employees as a group have gotten better at keeping secrets. Some things have been leaked on purpose, such as the fact that desk accessories will be disappearing (in their

little or no security is not acceptable to most companies. Apple needs to consider security at both the hardware level and the operating system level if it truly wants to offer a total business solution.

Integrity: Related to security is system integrity, which is the ability of the system to protect itself from assaults such as viruses. IBM's flagship mainframe operating system, MVS, strives for full integrity, and

the company accepts bug reports and develops program fixes if anyone can find a chink in the operating system that allows a program to bypass operating-system controls. While it's somewhat unfair to compare the Macintosh operating system with

And Miles to Go

present form, anyway). These leaks help third-party developers plan for the future, at least in a limited way.

Wherever the leaks and hints come from, they paint a consistent picture of change. The Macintosh of tomorrow will be very different from the Macintosh of today. Part of the change will be because of technological advancement, with new hardware making new ways to do things feasible. Part of the change will be architectural, with improvements from the software and hardware wizards. And part of the change will be competitive reaction, with Apple and IBM/Microsoft trying to outdo each other in the operating-system power and elegance sweepstakes (this competition is what keeps Apple from doing more than just hinting at future directions).

All of this is good. The Macintosh will be made better and better, and Apple will drop enough hints to keep people tantalized and help its developers stay on course. But I'm afraid that Apple may move so fast in its efforts to keep up with technological changes that it will neglect some of the issues that are important to the business user. Most of these issues have been discussed in this column before, but I'll cover them one more time in the hope that someone at Apple will recognize that there's more to making an insanely great computer than speed and elegance. The Macintosh has come a long way in a few years, but in some areas it still has miles to go.

Security: The Macintosh is a very vulnerable computer and, since security is only as good as the weakest link, anyone with Macintoshes included in a network is exposed. People have made jokes about the IBM keylock, but it's a simple system that works, and I don't know many companies that don't include it in their orders for PCs. Now that many Macs have internal hard disks, anyone can walk up to a Mac, turn it on, and have full access to its data. Using products like Timbuktu, they can have almost unlimited access to an entire network. A computer with something as huge and sophisticated as MVS, the concept of integrity is one that Apple should look at seriously, especially in light of the problems with viruses that have been getting so much media coverage.

Recovery: When a mainframe crashes and restarts, almost everything can be restored to how it was when the failure occurred. In most cases, the recovery is performed by the application software. However, the same sort of recovery could easily become a reality on the Mac with hooks in the operating system to help the applications. With true multitasking on the way, this kind of capability becomes even more important.

Reliability: One strength of mainframe operating systems is their sturdiness. Their error recovery is often so good that even in the case of severe hardware errors, the software can continue operating, even if all it can do is oversee an orderly shutdown. Many installations can go for weeks without a system crash, while handling thousands of users' demands. This kind of reliability can be offered only by a good operating system; one that By ROBERT R. WIGGINS keeps applications isolated from

he Mac is a very vulnerable computer and, since security is only as good as the weakest link, anyone with Macintoshes included in a network is exposed.



Quicken

Quicken (Intuit)

tax record-

porting, budgeting and cash management. By eliminating tedious

clerical work from

keeping. financial re-

Forget financial hassles with Quicken - the fast, easy way

to do your personal or small business finances

Quicken's screens look and act just like your checkbook. Offers the power of check writing,



MaraThon 030 (Dove)

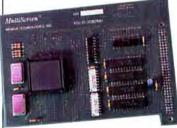
Put a fast running 68030 chip into your Mac II with this MaraThon accelerator board. Features a 256K byte internal data cache, 256 bytes of instruction cache, and a full 32 bit microprocessor operating at 32 MHz. Quick and easy installation. Superior workstation performance at an affordable price. (drives) \$1039.

HYPERWARE

Activision	
Business Class & Focal Point	65.
Focal Point II	25.
Reports for HyperCard	75.
Bantam	
Complete HyperCard Handbook	23.
Beacon Technologies	
HyperBible International Version 1	95.
HyperBible King James Version 1	
BrainPower	
ArchiText1	82.
Bright Star Technology	
HyperAnimator	79.
HyperPress Publishing	
Script Expert	49.
Silver Screen	
MacroMind	-
VideoWorks II HyperCard Driver	60.
MicroMans	
HyperAtlas	64.
D	
HyperTutor	29
Softworks Inc	
HyperTools #1 or #2ea	59
Stack Cleaner	29.
Symmetry	
HyperDA	38.
HyperDA	
AMILITIES	
Affinity Tempo II	00
Tempo II	89.
Berkeley System Design, Inc.	
Stepping Out II	52.



Beyond, Inc. MenuFonts 2 ... **CE Software** DiskTop 3.0.2 QuicKeys (macro programmer) 53. Central Point Lasertalk 1.0 Fifth Generation Pyro 15. Suitcase II 45. HJC Software, Inc. **ICOM Simulations** On Cue Kent Marsh MacSafe or NightWatchea 89. LaCie SilverServer92. Mainstay Capture42. TypeNow30.
Microlytics Olduvai ClipShare109. FontShare 149.
Icon-lit or MultiClip ea 39.
PCPC HFS Backup 3.054. Simon and Schuster Sentinal 2.0155.



MultiScreen Video Card (Mobius Technologies)

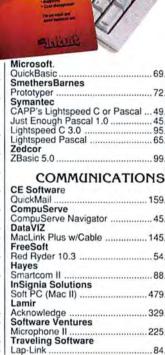
Increase your screen size almost three times with the NEW MultiScreen Video Card that lets you connect inexpensive 14" monitors to your Macintosh SE. You can choose from three different screen
resolutions, including 72 dpi. Displays up
to a full page lengthwise and works with
your built-in Mac screen for additional
workspace. Plugs into SE expansion

slot. Its flicker-free screen is ideal for desktop publishing! (disk drives) \$349.

Showcase F/X (Aegis Development, Inc.)

Add new dimensions to business presentations and desktop video pro-ductions. Powerful special effects and dazzling animations allow you to apply exciting styles and colors to any font.
Create animated text and slideshows. Design product information sheets, logos, and advertising layouts with unique font effects and headlines. Just the ticket for high-impact presentations with a professional look! (graphics) \$295

managing your finances. Quicken will save you hours of valuable time. (finance) \$33. SuperLaserSpool 2.082 Symantec Corporation
Symantec Utilities for Macintosh 59. DESK ACCESSORIES Affinity AffiniFile Allan Bonadio Associates
Expressionist 2.0 (equation edtr) 79. Borland Sidekick 2.0 Casady & Greene QuickDEX Exodus Software Retriever Preferred Publishers DAtabase Vantage SolutionsCall. SmartScrap & The Clipper 2.0 46. TENpointO Open IT! .. LANGUAGES Borland Turbo Pascal ... Turbo Database Mac65. Manx Software Systems
Aztec C or Unitoolsea 65.
Aztec C+SDB or C+MPWea 99.



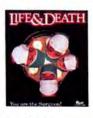
PixelPaint 2.0 (SuperMac)

The first and best selling color paint program for Macintosh color systems has now been enhanced. Equipped with a new set of powerful features for graphics, desktop publishing and color pre press work. Comes with built-in Pantone color picker, color separator with screen angling, and PixelScan (new color scanning utility). Choose PixelPaint as your complete solution for color graphics

(graphics) \$209.



ROM MacWAREHOUS



Life & Death

You are the surgeon! Test your skill with the scalpel. The first interactive medical movie for the Mac Read charts, order X-Rays and monitor EKG. The patient's life is in your hands. Gloves and mask included. (entertainment)



Linkword Languages

Learn a foreign language in just 10 hours. 400 word vocabulary that's ideal for travel and busi-ness. An audio tape lets you hear the correct pronunciation. It's easy and enjoyable. French, Spanish or German (educational) Each \$25.



Images w/Impact Business 1

New Business Clip Art. Create professional presentations with over 150 sharp, contempo-rary PostScript Images. Contains computers occupational and public symbols and much more! (graphics) \$69.

SCRIPTEXPERT



Script Expert

Programming for Hyper-card by the author of HyperTalk Programming. Script Expert knows the rules for every command, function, and message in Hypertalk. Requires no programming experience. (hyperware) \$49.

DESKTOP PUBLISHING PRODUCTS

Adobe	
ACE-Textures, Fill, and Patterns 168	3.
Illustrator 88309	3.
StreamlineCal	١.
Aldus	
PageMaker 3.0399	€.
Broderbund	
DTP Advisor47	7.
Letraset	
Image Studio or Ready, Set, Go! 279	Э.
Olduvai	
Read-It! 2.0 (OCR)199	Ð.
Quark	
Xpress or QuarkStyleCal	I.
Solutions	
SuperGlue 1.05	2.
Springboard	
Springboard Publisher 109	3.
Electrate and a series property of the series of the serie	

NETWORKING PRODUCTS

Connect Inc.	
MacNet 43	3.



Farallon	
Timbuktu 2.0.1	Call.
SuperMac	
Network DiskFit	199.
TOPS	
TOPS 2.1	149.
FONTS	
Adobe	
Fonts (All Avail.)	Call.
Altsys	
Fontastic Plus 2.0	54.
Letraset	
LetraStudio	289.
LetraFonts (various)	ea 59.
Olduvai	
ArtFonts	59.
ArtFonts CAD/CAM	
Graphsoft	
MiniCad Plus	525.
Innovative Data	
MacDraft	149.
	270

MGMStation (professional CAD) ... Call. FINANCIAL AND ACCOUNTING SOFTWARE

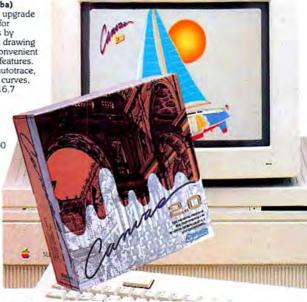
Micro CAD/CAM

.....279.

OOLIWARE	
Aatrix	
Payroll 3.5	19.
Payroll PLUS15	
Bedford	
Simply Accounting21	9.
Chang Labs	
Rags to Riches 3 pk 3.128	39.
Intuit	
Quicken	33.

Canvas 2.0 (Deneba)

This revolutionary upgrade sets the standard for drawing programs by blending powerful drawing capabilities with convenient easy-to-use paint features. Features include autotrace, multi-point Bezier curves, unlimited layers, 16.7 million colors for 24-bit Mac II support, hairlines to 1/1000th of an inch, improved precision to 64,000 dpi, PostScript gray scales in onedegree increments, TIFF and bitmap editing. and zoom capacity ranging from 3% to 3,000%. (graphics) \$159.



LYNX Turbo Trackball (LYNX Computer Products, Inc.)

Let aerospace technology give you precise fingertip control over cursor movement in less than half the space. Desktop publishing CAD/CAM drawing and graphics, as well as standard cursor movements, are easily accomplished. Needs no cleaning, gives you automatic accelerating and eliminates running off a mouseway. Get twice the speed, twice the resolution in less than half the space. Lifetime Manufacturer Warranty. (input/output) \$69.

MECA
Managing Your Money128
Monogram
Business Sense279
Softview
MacInTax Federal '8869
TaxView Planner
Survivor
MacMoney 3.0262
STATISTICAL ANALYSIS
Abacus Concepts
Stat/fow II
StatView II
BrainPower
StatView 512+ (requires 512k) 175
Statview STZ+ (requires STZK) 175

D2 Software	
MacSpin 2.0	.189.
Odesta	
Data Desk Professional	.289.
Paracomp	
Milo	. 169.
Select Micro Systems, Inc.	
Exstatix	.219.
Software for Recognition Tech	
MacEqn	24.
MUSIC AND SOUN	ND.

Altech

MIDI Interface59.	
MIDI Basic30.	
Coda	
MacDrums32.	
Perceive	
Electronic Arts	
Deluxe Music Construction 2.5 84.	
Farallon Computing	
MacRecorder (records sound) 139.	
Great Wave	
ConcertWare + MIDI 4.079.	
Impulse	
Audio Digitizer w/SoundWave 145.	
Intelligent Music	
OvalTune95.	
Opcode Systems	
Music Mouse39.	
Passport Designs	
Master Tracks Pro	
NoteWriter	
NOIEVVINEI 103.	

EDUCATIONAL/ **PERSONAL**

Artwork Linkword Languages (Sp, Fr, Ger)ea 25.

2400II Internal Modem (EPIC Technology, Inc.)

This internal modem for the Mac II can tap into any database, electronic mail or service bureau. Features auto dial/auto answer, call progrress monitoring, software controlled speaker, choice of tone or pulse dialing and redial on busy. It's voice/data switchable and has a self-test mode. Comeswith a 5 Year Manufacturers Warranty. (drives) \$315.



MORE FOR YOUR MON

DATABASE SOFTWARE

Acius	
4th Dimension	469.
Ashton-Tate	
Ashton-Tate dBase Mac	295.
Reflex Plus	189.
Chang Labs	
C.A.T	229.
Clarie	
FileMaker II	237.
Fox Software	
FoxBASE+/Mac 1.1	208.
Odesta	
Double Helix II	339.
GooQuani	100
Software Discoveries	
Record Holder Plus BUSINESS SO	45.
BUSINESS SO	FTWARF
Access Technology Trapeze 2.1	155
Ashton-Tate	155.
Full Impact	240
BreakThrough Product	ione
Market Master	105
Market Master R/A	245
A1 1	
MacProject II	205
Cognition Technology	333.
MacSMARTS 3.2	125
Cricket	133.
Cricket Graph	110
Cricket Graph	
	280
Clicket Flesents	289.



Double Helix II (Odesta)

Connect the icons to create a customized database! Runs and prints faster then the Old Helix. It prevents data loss during a system crash or power failure. The posting functions are easy to use. Object Manager keeps track of all your icons. Date and time icons are more flexible. Received MacUser Award for Best General Business Software - Europe 1988. No other database has anything quite like it! (database) \$339.

MicroPlanning International	
MicroPlanner Plus	385.
Microsoft	
Excel 1.5	259.
PowerPoint 2.1	255.
Works 2.0	189.
Nolo Press	
For the Record	29.
WillMaker	34.
North Edge Software Timeslips III	
Timeslips III	117.
Shana Enterprises	
FastForms! Construction Kit	89.
Softview	
FormSet	55.
MacInUse	42.
Spectrum Digital	
TrueForm	269.
Symantec	
More II	225.

WORD PROCESSORS AND OUTLINERS

Ashton-Tate FullWrite Professional269.



ı	Claris	
	MacWrite 5.0	102.
	Microsoft	040
	Word 4 (updated word processor) Write 1.0	79.
	Niles & Associates	
	End Note	82.
	Paragon	100
	Qued/M	109.
	Acta Advantage w/DA	69.
	T/Maker	
	WriteNow 2.0	. 109.
	WordPerfect Corp. WordPerfect	. 185.
	CDELLING CHECKER	00

SPELLING CHECKERS

Aegis	
Doug Clapp's Word Tools	42.
A.L.P.	
MacProof 3.0	115.
Deneba Software	35.
Bigthesaurus	54.
Spelling Coach Pro	Call.
Microlytics	
Word Finder (synonym finder)	33.
Sensible Software	
BookEnds	Call
Sensible Grammar	54
Working Software	
Spellswell 2.0	45
	43.
GRAPHICS	
3G Graphics	
Images w/Impact	
Graphics & Symbols 1	59
Business 1	69
Aba Cathuara	
Draw It Again Sam 2.0	70
Draw it Again Sam 2.0	200
GraphistPaint II	209.
Aegis Development, Inc.	
Showcase F/X	295.
Aldus	

CE Software CalendarMaker .

Claris

Cricket

SuperMac

Zedcor

Drawing Table PosterMaker Plus

MacDraw II 2.0325

MacPaint 2.0 102.

Curator (graphics management) 79.

PixelPaint 2.0209.

MUD9

Cricket Draw

Broderbund

Deneba Canvas 2.0159. Dream Maker Electronic Arts Studio/8 Microlllusions MicroMaps MacAtlas Pro (MacDraw format) 129. NuEquation Olduvai Art Clips Paracomp Swivel 3D Silicon Beach Digital Darkroom or Super 3D Call. SuperPaint 2.0129. Solutions

Deskpaint 2.0 69.

VISA and MASTERCARD accepted. No surcharge.
Your credit card will not be charged until your order is shipped.
It we must ship a partial order, we pay the freight on the remaining portion.
All U.S. shipments are insured at no extra charge.
C.O.D. orders accepted (add \$6.00 including shipping) — \$1,000 maximum.
Cash, money order, or cashier's check.
Corporate purchase orders accepted subject to credit approval.
All products are covered by a 120 day limited warranty.
CT residents add 7.5% sales tax. NJ residents add 6.0% sales tax.
HEPING

HPPING
All orders add \$3.00 per order. We ship Airborne Express overnight unless
UPS ground delivers overnight. (Some rural areas require an extra day.)
Orders placed by 5.00 pm Eastern time (weekdays) for "in stock" ifems ship
same day (barring system failure, etc.) for overnight delivery.
C.O.D. orders ship via UPS (Blue Label if you are more than 2 days from us
via UPS ground). Charge is \$6 including shipping.
Alaska, Hawall, outside continental U.S., APO/FPO call 201-367-0440 for
reformation.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion I'm Kerry, call me at:

(1-800-ALL-MACS) Inquiries; 201-367-0440 Canada; 800-255-6447 FA

MacWalter

1690 Oak Street, P.O. Box 1579. Lakewood, NJ 08/01 MONDAY THRU FRIDAY 8 A.M.TO 11 P.M. (Eastern Time) SATURDAY 8 A.M. to 8 P.M. (Eastern Time) NOW OPEN SUNDAYS! 8 A.M. to 8 P.M. (Eastern Time)

Cirrus Drive Kits (La Cie Ltd) Silver Screen

embedded SCSI drive.

your own internal, or

external drive for any

Cirrus case and a Cor-

software. (disk drives)

Organize your video tape collection. Instantly cross references up to 2500 actors and actresses. Lists more than 650 movies with complete descriptions, ratings and running times. (hyperware) \$42.



Managing Your Money

A fully integrated software program addressing every aspect of personal and small business finance. Write and print checks, set up a personal budget, estimate your and more. (finance) \$128.



ProModem 2400M

Get a 2400 baud modem, cable and one of the best communications software all in one package! Its platinum case matches your Mac and looks like it belongs on your desk. Two Year Manufacturer Warranty. (drives) \$199.

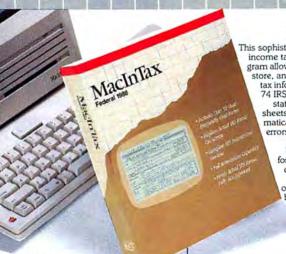


Rags to Riches 3 Pak 3.1

Keep your books in proper style with Rags to Riches, a well-integrated accounting system (Ledger, Payables and Receivables). New improved reporting capabilities. especially in the choice of fonts, styles and arrangement report elements. (accounting) \$289.



Copyright 1988 MicroWarehouse, Inc. MacWAREHOUSE™ is a division of MicroWarehouse, Inc. MacWAREHOUSE™ and MicroWarehouse are trademarks of MicroWarehouse, Inc. Item availability and price subject to change without notice.



MacInTax Federal 1988 (Softview) This sophisticated, easy to use income tax preparation program allows you to organize, store, and print out income tax information. Includes 74 IRS forms, schedules, statements and worksheets. Links forms automatically to reduce input errors. Program features the IRS instruction booklet on-line. All forms can be printed, complete with data onto blank paper or preprinted forms, both IRS approved. (finance) \$69.

Simon & Schuster	
Star Trek: Kobayashi Alternative .	24.
Spectrum HolóByte	
Falcon 2.0	32.
PT109 or Gato	
Solitare Royale or Tetris	ea 20.
The Software Toolworks	
Chessmaster 2100	32.
Life & Death	
The Hunt for Red October	
DISK DRIVES/	
	CC
MEMORY UPGRAD	
1 MEG SIMMS	Call.

1 MEG SIMMS	Call.
AST	
Mac286 Co-Processor (Mac II) .	1079.
CMS	
CMS TapeStack 60 Meg	Call.
MacStack 20 Meg	
MacStack 40 Meg	789.
MacStack 60 Meg	
Cutting Edge	
800K Disk Drive "NEW"	175.
Wedge XL 30 Plus	579.
Wedge XL 45 Plus	
XL 30 Internal or 45 Internal	

Microsoft West



FastBack

Now you can take all your key files on your next business trip! FastBack is a high speed backup program that copies data from hard disk to standard floppies at a rate of 1Mb per minute (or better!). Also features Error Correction Codes. (utilities) \$54.



GOfer (Microlytics)

The high speed text-retrieval a cessory from Microlytics. Sur mon GOfer with one keystroke search out information in yo disk files. Enter one or two word and have a document at yo fingertips within seconds! World with almost any file. (utilities) \$4



C.A.T. 2.0

Automate activities with this retional database designed to m age Contacts, Activities and Tir Plan activities, do forecasting scheduling for the future. Imp and share data among multi users. Database, mailmerge/t and calendar functions in one eto use program. (database) \$2



4.0 also includes SuperPaint 1.1 at

Payroll Plus

Voice & Video

BrightStar Talking Tiles **Bootware Software**

Broderbund

Math Blaster ..

Great Wave

Kids Time

Type Davidson

(Aatrix Software) Handle unlimited numbers of employees. Manage the payroll from up to ten different income sources or rates. It prints form 1099 and writes miscellaneous checks. You can itemize and accumulate straight time, overtime, doubletime, vacation, holiday and sick pay. Even handles the accounting for commissioned sales people, contractors and consultants. A must for managers of larger companies! (finance) \$159.

ResumeWriter Pro75.

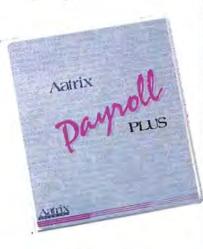
Calculus, Geometry, Physics ea. 59.

Speed Reader II39.

Rios Time 26.
Learning Company
Reader Rabbit 33.
Simon & Schuster
Typing Tutor IV 35.
The Software Toolworks
Mavis Beacon Teaches Typing 35.
Voice & Video

HyperCard Getting Started35.

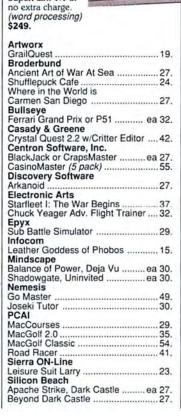
......20.



PageMaker 3.0 Word 4.0 Video	Video Tape	Таре	3 3	5. 5.

GAMES

Access Software Inc.	
World Class Leader Board	



Dayna Communications DaynaFile single 360K (5 1/4") 529. Dove MacSnap SCSI Interface Port 109 MacSnap 524E (512k to 1 meg) 289 MacSnap 524E (512k to 1 meg) 289. MacSnap 524S 379. MacSnap 548E (512k to 2 meg) 549. MacSnap 548S 599. MacSnap Plus 2 439. MacSnap 1024 Mem. Exp. Board Call. MaraThon Accelerators Call.

Arkanoid

and dazzling game play you've been seeking! Features Multiple Levels, Arcade High-Score Table, Variable Skill levels and more! Guaranteed to push you to the limit...and beyond! (entertainment) \$27.

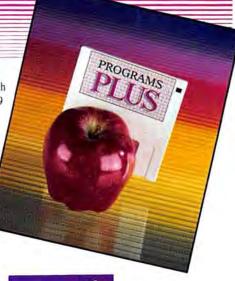


to Polish Up Your Mac

Modems

Abaton InterFax 12/48	329.	Practical Modem 2400SA	181
Anchor Automation		MacCommpack	
MacPac 2400E w/software & cable	179.	(2400SA w/Microphone II & Cable)	229
Epic		Prometheus	
Epic 2400 Int. SE	315.	Promodem 2400M Ext.	
Epic 2400 Int. Mac II	315.	(Software & Cable)	199
Hayes Microcomputing	2.0	Promodem 2400	
Smartmodem 1200	299.	(Hayes Compatible)	255
Smartmodem 2400	449.	Supra Corporation	-
MDIdeas		Supra Modem 2400	149
Commlink 2400	189.	U.S. Robotics	
Practical Peripherals	100.	Courier 1200 (Hayes Compatible)	199
Practical Modem Mini 1200SA	79.	Courier 2400 (Hayes Compatible)	349
		Charles and the state of the st	

Specials good through April 30, 1989



Aztec MPW C by Manx Software Systems



Experience the best of both worlds with the complete Aztec C system plus the full MPW Shell. When you use Aztec MPW C, you benefit from the sophisticated MPW Shell, adapted to work with the superior Aztec compiler, assembler, and linker. With Aztec MPW C, you actually have a choice of development environments, the UNIX-like Aztec Shell, or the Apple developed MPW shell. The MPW shell has a powerful

script facility, sophisticated windowing, and Multifinder compatibility.

Aztec MPW C 99.

Game Software

Access	-	MicroPro Pirates	
World Class Leader Board Golf	34.	Microsoft	
Accolade		Flight Simulator 1.02	
Hard Ball or Mean 18	23	Micro Sports MSFL Pro Draft	
4th & Inches	24.	MSFL Pro League Football	
Activision Shanghai or Jinxter	24.	or 500 Great Teams	
Corruption	27.	Miles Computing Inc.	
Universal Military Simulator or Manhole	30.	Harrier Strike Mission II or	
Might and Magic	36.	The Fool's Errand	
Sky Travel	45	Mindscape	
Artworx Bridge 5.0	22.	Balance of Power 1990 or	
Avalon Hill Mac Pro Football	28.	Crossword Magic	
Broderbund	557	Deja Vu or Deja Vu II	
Ancient Art of War or At Sea	27.	King Of Chicago, Shadowgate or	
ShufflePuck Cafe	24.	Joker Poker	
Poster Maker Plus	36.	Defender of the Crown, Colony	
Bullseye Software		or The Uninvited	
P51 Mustang or Ferrari Grand Prix	32.	Practical Computer Applications	
Casady & Greene, Inc.	02.	MacGolf or Lunar Rescue	
Crystal Quest	26.	MacCourses	
Crystal Quest w/Critter Editor	42	Road Racer	
Centron Crapsmaster,		Mac Golf Classics	
Roulettemaster or BlackJack Ace	27.	Primera	
Pokemaster or Baccaratmaster	27.	Smash Hit Racquetball II	
Discovery Software Arkanoid	27.	Sierra On-Line	
Electronic Arts	-	Leisure Suit Larry	
ChessMaster 2000	28.	Space Quest or Space Quest II	
Chuck Yeager Flight Simulator	7.0	Police Quest	
or Life & Death	32.	Silicon Beach Software	
Starfleet I	37.	Dark Castle or Apache Strike	
Scrabble	26.	Beyond Dark Castle	
One-On-One, Pinball Construction Set.		Sir-Tech Mac Wizardry	
Seven Cities of Gold, SkyFox, or		SoftStream, Inc.	
Patton vs Rommel	15.	Colour Billiards	
EPYX		Mac Man or Solitaire DA	
Sub Battle Simulator (Mac or MacII)	29.	Sphere, Inc. Tetris	
Hayden Software Sargon IV	29.	GATO, Orbiter or Pt-109	
Infinity Software, LTD.		Solitaire Royale (Mac or MacII)	
Go or GrandSlam Tennis	27.	Falcon 2.0	
Infocom		Studio Zero Orbital Mech	
Leather Goddesses of Phobos	15.	SubLogic Jet	
Beyond Zork or HitchHiker's Guide	15.	XOR Software	
Zork Trilogy or QuaterStaff	30.	NFL Challenge	
Zork Zero	36	Pro Challenge	

Now Shipping Standard Air by



Customer Service (203) 378-3662 • FAX (203) 381-9043 Monday thru Friday 9 A.M. to 9 P.M. Saturdays 10 A.M. to 6 P.M. (Eastern Time)

OUR POLICIES

- · We accept MASTERCARD and VISA with no added surcharge.
- · Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks. With MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- Locations more than I day away shipped via Federal Express Standard Air service.
- Federal Express Priority 1 service also available.
- · Sorry, we cannot accept COD orders.

SHIPPING

32

32.

30.

35. 29. 41.

19. 23. 29. 29.

32

29

 Continental United States: Add \$3.00 per order to cover Federal Express Standard Air service. APO/ FPO orders shipped 1st Class Mail (add 3% \$5.00 Min charge).
 Alaska, Hawaii and Outside Continental US: call or write for information.

RETURNS

Defective software will be replaced immediately by the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at (203) 378-3662 to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee.

All items subject to availability. Prices subject to change without notice.

Mail-in orders (especially from foreign countries), please furnish telephone number.

Positively A Plus



75 Research Drive, Stratford, CT 06497 800/832-3201

Please circle 62 on reader service card.

Positively A Plus.

Utility Software

35.	Olduvai Software	
42.	Icon-Itl or MultiClip	39
	Read-It! TS (For Thunderscan)	79
52.	Read-It! O.C.R. 2.0 (For Image Scanners) PCPC	199
53.	HFS Back-Up 3.0 Softworks	54
20.	Stack Cleaner	29
45.	HyperTools 1 or 2	59
	SuperMac Software	
44.	SuperSpool 5.0	54
54.	SuperLaserSpool 2.0	82
32	Diskfit 1.4	54
15.	Sentinel 2.0	155
69.	Symantec	
	MacSQZ!	59
36. 95.	Symantec Utilities for Mac (S.U.M.) Williams & Macias	69.
44.	myDiskLabeler w/Color	31
	myDiskLabeler w/LaserWriter Option	34
59.	Working Software	
47.	Findswell 2.0 (Document Finder)	36
	42. 52. 53. 20. 45. 44. 54. 32. 15. 69. 36. 95. 44.	42. Icon-Itl or MultiClip Read-Itl TS (For Thunderscan) 52. Read-Itl O.C.R. 2.0 (For Image Scanners) PCPC 53. HFS Back-Up 3.0 Softworks 20. Stack Cleaner 45. HyperTools 1 or 2 SuperMac Software 44. SuperSpool 5.0 54. SuperLaserSpool 2.0 55. SuperLaserSpool 2.0 69. Symantec MacSOZ! 69. Symantec Utilities for Mac (S.U.M.) Williams & Maclas 44. myDiskLabeler w/Color myDiskLabeler w/Color Morking Software

Printers & Digitizers

Digital Vision		Seikosha	
Computer Eyes-Mac	Special 209.	SP1000 (Imagewriter Comp.)	235.
Koala Technologies Corp.		Summagraphics	
MacVision 2.0 (Digitizer)	219.	Bit Pad Plus	329.
Kurta		ThunderWare ThunderScan	189.
IS ADB Tablet	255.	LightningScan	409.
Cordless 4 Button Cursor	65.	Mac II Power Accessory	42.

FASTAT by SYSTAT



FASTAT is a statistics and graphics package for people who need graphics, tables, financial projections, and surveys now. FASTAT's point-and-click interface insures an ease of use that won't compromise accuracy and sophistication. FASTAT will handle up to 50 variables and unlimited cases. FASTAT does it all. Summary statistics, one-way and multi-way tables, chisquare, etc. With FASTAT,

sophisticated two and three dimensional graphics are easy.

FASTAT 165.

Disk Drives/Hard Disks/Upgrades

Mac286 Co-Processor (Mac II) Mac 86 Co-Processor CMS Sp. Spring MacStratt SD20 (Max III)	1069. 419.	MacSnap Plus 2 (MacPlus to	
CMS	419.		
		2MB Non Expandable)	439.
CD Carios MasChael CD00 Was 105 W		MacSnap 2SE or 1024 Option	
SD Series MacStack SD20 (Mac+/SE/II)	569.	(1MB or MacII Memory Exp.)	439.
SD Series MacStack SD30 (Mac+/SE/II)	615.	SCSI Interface/Port	109
SD Series MacStack SD60 (Mac+/SE/II)	849.	MacSnap Toolkit (torx driver.	
Cutting Edge		opener & grounding set)	15.
Cutting Edge 800k Drive	175.	Personal Computer Peripherals	14.
Cutting Edge Wedge XL 30		Platinum Color. Optional Built-In	
Plus SCSI Hard Drive	579.	Modems Available.	
Cutting Edge Wedge XL 45	0,0.	MacBottom HD-21	
Plus SCSI Hard Drive	729.	(20+MB SCSI Hard Disk)	659.
Cutting Edge XL 30 Internal Hard Drive	469.	MacBottom HD-32 (32MB SCSI HD)	699.
Cutting Edge XL 45 Internal Hard Drive	645.		
Dove Computer Corporation	043.	MacBottom HD-45 (45MB SCSI HD)	859.
FastNet Networking	C-11	MacBottom HD-70 (70MB	000
	Call	SCSI Hard Disk)	999.
Marathon 030 Accelerator	1039.	MacBottom HD 84 (84 MB	65.2
Marathon 020 Accelerator		SCSI Hard Disk)	1249.
MSE 1 (16 Mhz)	585.	Rodime Rodime 20 Plus Ext.	629.
MSE 2 (16 Mhz w/1MB)	979.	Rodime 45 Plus (Ext. 45MB SCSI)	939.
MSE 3 (16 Mhz w/Math Co-processor)	779.	Rodime 450RX (Int. 45MB Mac SE/II)	829.
MSE 4 (16 Mhz w/1MB & Math Chip)	1159.	Rodime 100 Plus (Ext. 100MB SCSI)	1169.
MacSnap 524E (512E to 1MB)	289.	Rodime 140 Plus (Ext. 140MB SCSI)	1319.
MacSnap 524S (512E to 1MB w/SCSI)	379.	Rodime 1000 RX (Int. 100MB MacII)	1045.
MacSnap 548 (512K to 2MB)	459	Video Technology	
MacSnap 548E (512E to 2MB)	549.	Laser 800k External Drive	185.

MapMaker by Select Micro Systems



MapMaker is a complete business map making system. Map-Maker can quickly uncover hidden relationships in geographic data, and demonstrate the findings with striking presentation graphics. MapMaker includes boundary files for states and countries in the US, and 176 countries in the world. Map-Maker also includes population statistics for each of the United States, as well as 176 other countries. MapMaker is the definitive

tool for market research, site analysis, sales force performance etc.

DataBase Management

Acius 4th Dimension	485.	Fox Software	
4D Runtime	235.	Fox Base Plus	208.
Activision		Fox Base Plus Runtime	158.
Reports for Hypercard	75.	Microsoft	
Focal Point & Business Class Bundle	65.	Microsoft File 2.0	120.
City To City	30.	Odesta Double Helix II	339.
Apple Computer		DataDesk Professional	289.
HyperCard	42.	GeoQuery	199.
Ashton Tate		ProVue Panorama	209.
dBASE Mac 1.0	295.	Software Discoveries	
Borland Reflex Plus	189.	RecordHolderPlus	45.
Claris FileMaker II	237.	TENpointO FocalPoint II	119.

Educational/Creative Software

Ars Nova Practica Musica	75.	Math Blaster or Word Attack!	27
Barron's Barron's SAT	35.	Electronic Arts Mavis Beacon Typing	36
Bible Research The Word (KJV or NIV)	165.	Venture's Business Simulator	47
Bogas Productions Studio Session	49.	Deluxe Music Construction Set V2.5	85
String Quartet, Country or Heavy Metal	15.	Great Wave Software KidsTime	26
Super Studio Session	75.	Number Maze	27
Bright Star Technology Alphabet Blocks	32.	Crystal Paint	27
Talking Tiles	69.	Individual Typing Instructor Encore	26
Broderbund Clip Sounds	36.	Learning Company Reader Rabbit	33
Jam Session or Black & White Movies	30.	Mindscape Perfect Score SAT	
Sensei Geometry, Calculus or Physics	59.	w/The Perfect College	46
Type!	20.	Niles & Associates End Note	82
Where in the World is Carmen SanDiego?	27.	Nordic	-
Coda Mac Drums	32.	MacKids Educational Prog. (ea)	28
Perceive	52.	Simon & Schuster Typing Tutor IV	35
Davidson & Associates		Springboard Top Honors	59
Speed Reader II	39.	Family Matters or Atlas Explorer	28

MAC-101 Keyboard by DataDesk



If you are looking to replace your Mac's keyboard, the *MAC-101* by DataDesk is the way to go. It comes in an ADB version for the Mac SE and II, and a non-ADB version for the Mac 512 and MacPlus. The positive tactile, firm feel 101 includes a full numeric keypad, 15 function keys, 6 page control keys, and a T-style cursor pad.

Keyboard status indicator lights let you know when everything is going smoothly. Includes 101-Keys desk accessory software, a powerful macro utility which allows you to exploit the full power of the function keys with almost any Macintosh application.

MAC-101 Keyboard (Specify ADB or non-ADB)................. 145.

Programs & Peripherals

Networking Software & Hardware

CE Software		Shiva NetModem V2400	479.
Quick Mail	159.	SuperMac Software	
Farrallon		Acknowledge	329.
PhoneNET AppleTalk	9.	Multi-User SuperLaserSpool	199.
PhoneNET Din 8 or DB9	35.	TOPS	
Timbuktu	65.	Tops 2.0 Mac, . Tops Dos	
TrafficWatch	145.	or Net Print	Special 119.
LaCie		Tops FlashBox	Special 125.
Silverserver	92.	Tops Repeater	129.
Microsoft		Tops FlashCard	169.
Microsoft Mail 1-4 users	195	InBox-MacConnection	45.
Olduvai Software Clip Share	109.	InBox-Starter Kit	Special 149.
Font Sharer	149.	Tops Teleconnector Din8 or DB9	39.

Desk Accessory Programs

Affinity Microsystems		Electronic Arts Disk Tools Plus	31.
Tempo II	89.	Mainstay	
Beyond Inc.		Think'n Time	61.
Menu Fonts 2	30.	Olduvai Software	
Borland SideKick V2.0	68.	DA Switcher	25.
Bright Star Technology	77	Solutions, International	
Hyper Animator	79.	Super Glue	52
Casady & Greene, Inc		SmartScrap & The Clipper V2.0	46.
QuickDex 1.4A	32	Symmetry	
CE Software DiskTop 3.0	27.	HyperDA (Reg. 512K)	38
Deneba Software		TENpointO	100
Comment 2.0	54.	OpenIt!	59
Common Els			

MiniCad+ by Graphsoft

MiniCad+ is a professional CAD system that offers users high precision 2D drafting, including hierarchical symbol editing, fillets, beziers and cubic splines, auto-joint, auto-dimensioning, continuously variable zoom, and MiniCad+ makes full use of Mac II capabilities. MiniCad+'s active spreadsheet can be "hot" linked to objects to perform calculations. MiniCad+ also provides an all new integrated 3D that will change your mind



about micro 3D, and MiniPascal, a programmable macro language.

MiniCad+ 520.

Communications Software

Compuserve		Insigna SoftPC	409
Compuserve Starter Kit	24.	Software Ventures	
Grolier On Line Encyclopedia	32.	Microphone II (Includes Glue)	225
Compuserve Navigator	45.	Solutions, International	
DataViz		BackFax	129
MacLink Plus with Cable	145	Synergy Software	
Freesoft		VersaTerm	65
Red Ryder V10.3	54.	VersaTerm-Pro	195
Hayes		Traveling Software	
Smartcom II 3.0	88.	LAP-LINK	84

Word Processors & Desktop Publishing

Access Technology		Letra Studio	289
Mind Write 2.0	95	LetraFonts (Various Vol. 1-45 ea.)	69
Mind Write Express	145.	Microsoft	
Allan Bonadio Associates		Microsoft Word 4.0	255
Expressionist 2.0	79.	Quark, Inc.	
Aldus Corporation		QuarkXPress V2.0	499
PageMaker 3.0	399.	QuarkStyle	219
Ashlon Tate		Symantec	
FullWrite Professional	269.	More II	245
Broderbund		Symmetry	
DTP Advisor	47.	Acta Advantage	69
Caere Omnipage	565.	T/Maker Company	
Claris		WriteNow V2.0	109
MacWrite 5.0	102	Word Perfect Corporation	
Emerald City Smart Art	95.	Word Perfect	185
Letraset	-	Working Software	
Ready, Set, Go! 45	275.	QuickLetter	79

TOPS/InBox/FlashBox by TOPS



With TOPS you can transform any Mac with at least 512K of memory into a TOPS Network station, enabling it to share files, printers, and multi-user applications with other computers on the TOPS Network. InBox enables users to send and receive messages, memos, and files over a TOPS Network. With TOPS FlashBox you can speed up your AppleTalk™ network and allow your Mac to communicate at the Flash talk speed of 770K

bits per second — more than 3 times faster than AppleTalk!

TOPS		 in														 	119.
InBox																	
FlashBox .																	

Spelling & Grammar Checkers

Aegis Development		Lundeen & Associates	
Doug Clapp's Word Tools 2nd Edition	42.	WorksPlus Spell 1.1	46.
A.L.P. Systems		Microlytics, Inc.	
MacProof 3.0	115.	Word Finder (Synonym Finder)	33.
Deneba Software		Sensible Software	
Big Thesaurus	54.	Sensible Grammar or BookEnds	54.
Spelling Coach 3.0 Professional	105.	Working Software Spellswell 2.0	45.
Electronic Arts Thunder! 1.23	30.	Lookup (Makes Spelling Suggestions)	30.

Accounting Packages

Aatrix Software Aatrix TimeMind	er 109.	Insight Expert GL, AR, or AP	455.
Aatrix Payroll Plus	159.	MECA Managing Your Money	128.
Bedford Software Simply Accounting 219.		Monogram Business Sense	279.
Chang Labs		Dollars & Sense 4.0	81.
New Enhanced Version III Modul	es!	Peachtree Back To Basics Professional	
Rags to Riches Gen. 3-Pak 3.1		(GL/AR/AP/INV)	159.
(GL/AR/AP)	Special 289.	Softview Taxview Planner	65.
Rags to Riches GL, AR, or AP	119.	California or New York Supplements	39
Dac Software Dac-Easy Light	44.	MacinTax Federal	69
Intuit Quicken	33.	Survivor Software	
Layered Insight One Write	185.	MacMoney 3.0 (En. Ver.)	62

Rags to Riches '3-Packs' by Chang Labs



Rags to Riches is the flexible and powerful modular accounting system that's winning praise from accountants and reviewers nationwide. Now, Chang Labs offers its popular Rags to Riches '3-Packs' at a special price and with a special bonus! Each '3-Pack' offers the user flexible reporting, batch totals for any time period, user definable accounting cycles, and impressive speed. When you need to analyze, graph or present your accounting information, just

export it to your favorite program! As a special bonus, if you choose the '3-Pack' that suits your needs before April 30th, 1989, *Programs Plus* will send you an Aatrix Payroll program, absolutely FREE!!

Rags to Riches 'General 3-Pack' (G/L, A/R, A/P)	289.
	359.
	359.

Visit us in the Electronic Mall™ on Compuserve - GO PP

Shipped Federal Express

Business Software

Abacus Concepts		Micro Planning Software	
StatView II (Mac+,		Micro Planner 6.0	325
SE, II w/68020 & 68881)	349	Microsoft Microsoft Works 2.0	189
StatView SE+ Graphics	229.	Microsoft Excel 1.5	255
Access Technology Trapeze 2.1	155	Nolo Press WillMaker 3.0	34
Ashton Tate Full Impact	249.	For the Record	29
Borland Eureka! The Solver	133.	Paracomp Milo	159
BrainPower ArchiText	182.	Pro Plus WallStreet Investor V3.0	469
StatView 512 Plus	175.	Satori Software Bulk Mailer 3.2	79
Math View Professional	144.	Bulk Mailer Plus	195
DataScan	118.	Components GL	389
Bravo Technologies MacCalc	79.	Select Micro Systems, Inc.	
Chang Laboratories	2.50	Exstatix	219
C.A.T. Contacts • Activities • Time	229.	MapMaker	Special 215
Claris MacProject II	395.	Shana Corporation Fast Forms	89
D2 Software		SoftView Form Set	55
MacSpin 2.0	189.	Synex Mac Envelope 4.0	55
Individual 101 Macros For Excel	37.	Mac Invoice	29
Mainstay Capture	42	Systat Systat 3.2	
Mac Flow 2.0 or Mac Schedule	115.	(Specify MacPlus, SE or Mac II)	459
Meta Software MetaDesign	199.	Fastat	Special 165

ComputerEyes by Digital Vision



ComputerEyes introduces a new dimension to image processing technology with the most versatile and comprehensive video digitizing system in its class. ComputerEyes lets you digitize high quality images from any standard video source, videotape, camera, video disk, and store them on your Macintosh. In as little as six seconds, you can digitally reproduce three-dimensional objects. Computer-

Eyes images can be directly imported into documents created with PageMaker and ReadySetGo! for unparalleled results!

Graphics Software

3G Graphics		Macromind Videoworks II	175
Images w/Impact Graphics & Symbols	59.	Videoworks II Accelerator	118
Images w/Impact Business 1	69.	Videoworks II Driver for Hypercard	60
ABA Software Draw It Again Sam 2.0	79.	Micro Illusions	
Graphist Paint II	289.	Photon Paint	179
Adobe Systems Adobe Illustrator 88	309.	Micro CAD/CAM MGMStation	685
Adobe Fonts (Various volumes)	Call	Micro: Maps	
Aldus Freehand	349.	MacAtlas Paint 2.0 (MacPaint Format)	45
Altsys Corp. FONTastic Plus 2.0	54	MacAtlas Hyper Atlas	64
Fontographer 2.2		MacAtlas Professional	
Ashton Tate Full Paint	69.	(PICT/MacDraw Version)	129
Broderbund Print Shop or Clip Charts	36.	Microsoft Microsoft PowerPoint 2.0	255
Drawing Tables	78.	Miles Computing	9,5,6
CE Software Calendar Maker 3.1	27.	Mac the Ripper or Orchestra of Fonts	32
Claris MacPaint II	102	People, Places-Things or Taking	
MacDraw II	309	Care of Business	32
Cricket Software Cricket Draw	169.	Olduvai Software	
Cricket Paint	99.	Art Clip or ArtFonts 1, 2 or 3	59
Pictograph	89.	Paracomp Swivel 3D	249
Cricket Graph	119	Silicon Beach Software	
Cricket Presents	289	SuperPaint 2.0	129
Deneba Software	2.25	Digital Darkroom	169
Canvas 2.0 (Includes Desk Accessory)	159.	Super 3D	179
Dream Maker	7.0	Solutions International	13.00
MacGallery (Hypercard or Paint)	28.	The Curator (Catalog Your Art)	79
Cliptures	97.	Springboard Certificate Maker	24
Dubl-Click Software	6.17	Works of Art Assortment.	
World Class Fonts: Various Vol. 1-6 (ea)	45	Holiday, or Education	28
WetPaint: Various Vol. 1-16 (ea)	45.	Works of Art Laser Art or Fonts	59
Electronic Arts Studio 8 (MacII)	319.	Springboard Publisher	109
Foundation Publishing Comic People	25.	SuperMac Software Pixel Paint	199
Comic Strip Factory	44	Symmetry	
Generic Software Generic CADD	54.	Picture Base & Wet Paint Bundle	95
Graphsoft Mini Cad 4.0	375.	T/Maker Click Art Letters I. Letters II.	
	ial 520.	Personal Graphics, Effects,	
Innovative Data Design Dreams	279.	Business Image, or Holidays (each)	28
MacDraft 1.2B	149.	Christian Images	35
Laserware Laserpaint Color II	359.	Click Art EPS Illustrations	75
Letraset ImageStudio 1.5 or StandOut	275.	Zedcor DeskPaint 2.0	69

Accessories

Abaton ProPoint (ADB Mouse		Antiglare Polarizing Filter	33.
for Mac SE & Mac II)	89.	Mac II Stand and Cable Kit	65.
Asher Engineering		Modem/Fax Protector 10	15.
Turbo Trackball (Mac & Mac+ or		Modem/Fax Protector 20	25.
Mac SE & Mac II)	69.	Power Tree Surge Suppressors	
CH Products Mirage: Quad or ADB		(10, 20, or 50)	Call
(Turns Joystick Into Mouse)	39.	Printer Muffler Stand (80 & 132)	24.
Mach IV Plus: Quad or ADB	65.	Printer Muffler 80	43.
Cutting Edge		System Saver Mac (Beige or Platinum)	64.
Cutting Edge MCK-105QK		Super Base	34.
Keyboard w/Quickeys	149.	System Saver SE	55.
DataDesk		Masterpiece Mac II	105.
MAC-101 Keyboard/Beige		New Turbo Mouse (Reg. or ADB)	119.
	pecial 145.	Universal Copy Stand	22.
MAC-101 ADB Keyboard/Platinum	e said A seco	Universal Printer Stand	15.
	pecial 145	Mobius	
Ergotron Mousecleaner 360°	15.	Fanny Mac QT (Beige or Platinum)	60.
MacTilt (Mac, SE or II)	68.	Mouse Systems	13.5
Farallon		A+ Mouse (MacPlus)	65.
MacRecorder Sound System		A+ ADB Mouse (Mac SE/Mac II)	85.
(Mac SE or Mac II)	139	Moustrak	-
Goldstein & Blair	100.	MousePad 7" x 9" Size	8.
Macintosh Bible 2nd ed.	20.	MousePad 9" x 11" Size	9
Impulse Audio Digitizer w/soundwar		Orange Micro	3.
I/O Design	6 100.	Grappler Spooler	39.
Mac Luggage in Navy or Plat.		Grappler C/Mac/GS	79
Macinware Plus Carrying Case	64.	Grappler L/Q or Grappler L/S	92
Macinware SE Carrying Case	75.	Ribbons	32.
Imageware II Carrying Case	49.	Available in Black, Blue, Brown, Green,	
HDware (Hard Disk Case)	49.	Orange, Purple, Red, Yellow, Silver & Gold	
	49.	ImageWriter Ribbon	4
Kalmar Designs			20
Teakwood Roll-Top Disk Cases:		ImageWriter Black 6-pack	20.
Micro Cabinet (holds 45 disks)	14.	ImageWriter Rainbow Pack (6 Colors)	
Double Micro Cabinet (holds 90 disk		ImageWriter II-Four Color Ribbon	17.
Triple Micro Cabinet (holds 135 disks	31.	ImageWriter LQ Black	
Kensington		ImageWriter LQ Four Color	20.
Mouse Pocket (Reg. or ADB)	8.	Seikosha Ribbon Black	6.
Mouseway (Mousepad)	8.	Silicon Comforts MacChimney	
ImageWriter or ImageWriter II Cover	9.	(Very Effective Cardboard	
Macintosh Plus/SE Dust Cover	9.	Laminate Convection Cooling Device)	16
Macintosh SE w/extended Kybd Cov		Targus Imagewriter II Carry Case Blk.	49.
Tilt/Swivel	22.	Macintosh Plus Carry Case Blk.	59.
Apple Security Kit	34.	Deluxe MacPlus-XKB Blk	69.

Blank Media

Single Sided 31/2" Diskettes		Centech 31/2" DS/DD Color Disks (10)	19
Bulk (Sony) 31/2" SS/DD Disks (10)	12	Sony 31/2" DS/DD Disks (box of 10)	19
Sony 31/2" SS/DD Disks (box of 10)	13.	Fuji 31/2" DS/DD Disks (box of 10)	19
Double Sided 31/2" Diskettes		Maxell 31/2" DS/DD Disks (box of 10)	20
BASF 31/2" DS/DD (box of 10)	17.	Verbatim 3½" DS/DD Disks (box of 10)	19
Bulk (Sony) 31/2" DS/DD (10)	17.	3M 31/2" DS/DD Disks (box of 10)	20

Languages

Borland		Smethers & Barnes	
Turbo Pascal	68.	Prototyper	72.
Turbo Pascal Tutor	46.	Symantec	
Consulair		Lightspeed C	119.
Mac 68000 Dev. System	59.	Lightspeed Pascal	85.
Manx		Just Enough Pascal	55.
Aztec C	65.	T.M.L.	
Aztec C + SDB	99.	TML Pascal II V3.0	139
Axtec C + MPW	Special 99.	TML Source Code Library II	42
Microsoft	4 5 500 500	Zedcore	
Quick Basic	65.	ZBasic 5.0	99.



75 Research Drive, Stratford, CT 06497 800/832-3201

ACCUNTING

he computer did not start with IBM or DEC. It started with the abacus and the slide rule. Computers have had a long relationship with numbers, and oddly enough, people who work with numbers have had a love affair with the computer. That Macintosh over there on your desk? Don't let anyone tell you differently — it's really a number-crunching machine.

So why are accountants and others paying such close attention to the Mac? Simply accounting for the reasons, you'd marvel at all the software packages that are available. And because the accounting market for the Mac is so competitive, the software continues to get better. Now, not only can these packages add, subtract, multiply, and divide faster than 10,000 clerks, but they can also keep track of innumerable invoices, checks, and ledger pages. They can even help you prepare your taxes (see "Mac Tax Force" in this issue).

Small businesses are also attracted to these packages. One of the most important decisions you face as a manager of a small business is selecting the right package. An accounting program can either help your business grow or cut it off at the jugular vein.

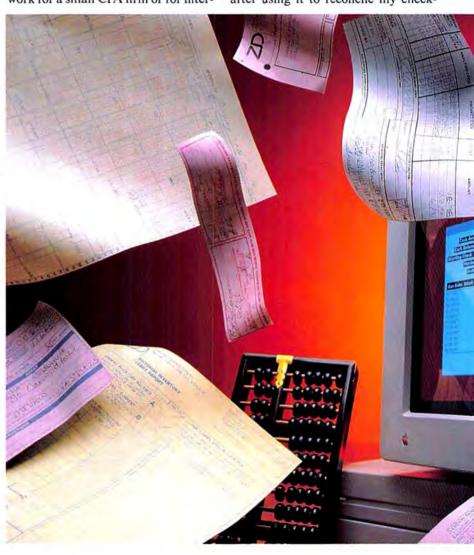
Choosing a package from any of the top vendors can be difficult unless you have a combined degree in computer science and accounting. This article is intended for those of you who don't have the aforementioned credentials. While we're not giving you an exhaustive look at all packages, we hope to provide some insight into some of the top programs: Checkmark Software's MultiLedger and Payroll, Bedford Software's Simply Accounting, Layered's Insight, and Great Plains Software's Great Plains Accounting Series.

LET ME ACCOUNT THE WAYS

Giving you more than you ever expected in a package is MultiLedger, an integrated general ledger, accounts receivable, accounts payable, and inventory system. MultiLedger handles multiple companies simultaneously with up to nine profit centers each, making it a good choice for write-up work for a small CPA firm or for inter-

nal accounting in a multiple-productline company.

The system performs all the routine tasks you would expect of an integrated accounting system, as well as handling some complex accounting such as prior-period adjustments and budgettracking functions. You can get addicted to using MultiLedger — in fact, after using it to reconcile my check-



FOR JASTE

book, I could no longer imagine doing it manually.

A welcome and impressive bonus is the Payroll program, which can be linked to MultiLedger. Like Multi-Ledger, Payroll can handle multiple companies with up to 200 employees per year, keeping track of hourly as well as salaried employees, up to six user-defined deductions for company

ACTED DESCRIPTION Total Chroke

plans or programs, two additional income categories, and overtime as well as double time. The Payroll system prints the complete line of documents needed, such as paychecks, W-2 forms, earnings registers, payroll verification reports, check registers, and tax summaries. The interfaces of the two programs are consistent, and at \$690 for the entire system (\$395 for MultiLedger, \$295 for Payroll), MultiLedger and Payroll are a bargain for companies that don't need a networked accounting system.

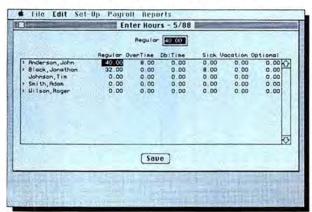
MultiLedger comes with a standard chart of accounts that can be copied into the new company and used as is or modified for your special needs. You also have the option to create your own from scratch. Once the chart of accounts is established, accepting transactions in MultiLedger is a straightforward job of filling in information requested by the dialog boxes concerning your company, your customers, and your products. All major aspects of small-business operation are covered - item purchases, customer invoices, and sales journals. And you can forget about hiring that budget director, once you get this program. Budget information is added by relating budgeted amounts to income or expense accounts, and it can be added in total for the year (annualized by Multi-Ledger) or in a monthly amount.

REPERTOIRE OF REPORTS

Rest assured, when report time comes around, you'll have help in this area, too. The reporting modules produce all of the standard reports: income statement, balance sheets, trail balance, detailed transaction reports, as well as a host of receivables information. MultiLedger also produces a series of bar charts that compare the current year's performance with that of the previous year for selected account ranges. Reports can be quickly converted to SYLK format for use by spreadsheets or graphics programs. Text files can also be created to integrate reports into word-processing documents.

When you're ready to churn out a report, MultiLedger lets you add an artistic touch. You can use PICT files created with drawing programs such as SuperPaint or MacDraw as templates for the forms that MultiLedger generates. You can print these out si-

Figure 1: Payroll, from Checkmark Software, is a welcome addition to MultiLedger. It keeps track of hourly and salaried employees, overtime, double time, and up to two additional income categories. It even prints out paychecks and W-2 forms.



AEL LINDSTRON

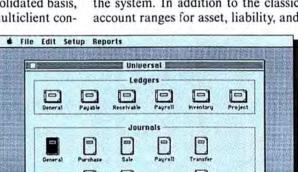


multaneously with information from the program on a high-resolution printer such as an ImageWriter or LaserWriter.

ACCOUNTING MADE SIMPLE

Unlike MultiLedger, Simply Accounting handles only a single company's books on a nonconsolidated basis, so it can't be used for multiclient con-

Figure 2: Despite its PC ancestry, Simply Accounting supports the Mac interface, though it fails to support or take full advantage of the Mac's capabilities. Among its virtues, however, is that Simply Accounting is very easy to learn.



solidated work. But don't judge the package on this basis alone; after all, Simply Accounting does live up to its name. It's very easy to learn, and its \$349 list price makes it competitive with MultiLedger and Payroll.

Simply Accounting uses an elegant scheme for classifying accounts within the system. In addition to the classic account ranges for asset, liability, and expense accounts, the program uses a simple notation to determine how these accounts will appear on printed statements. It determines print format, justification, and the totaling characteristics of the accounts. A powerful feature of the system is that it can suppress accounts that have zero balances on the financial statements.

The system setup is accomplished by filling in a series of dialog boxes that prompt you for the information necessary to run the program. Some of the information, such as payroll withholding rates, may not be readily available, but you can reenter the program at a later date to make your entries. And setting up the various modules of Simply Accounting is not a difficult task, though the new user can become easily discouraged by the amount of information required. Again, don't let this turn you away from this package Simply Accounting is very thorough in its operations.

We've got a new toy for you to play with.



The Hewlett-Packard PaintJet color printer for the Macintosh.

Because not all business solutions are black and white.

Some, of course, are in color.

Great, smashing, eye-catching color. Beamed up on an overhead. Or tucked neatly into a professional report. Driving home an issue. Reinforcing a conclusion.

With 256 colors on the Macintosh II and 8 on the Macintosh SE. For only



Perhaps the feature that most distinguishes Simply Accounting from MultiLedger is the job-costing module. Also known as Jobcost, this module is something of an outlier. Jobcost allocates revenues and expenses to a particular profit center or project.

All income and expenses items can be automatically passed to this module by the system. The resulting reports show the profitability of a particular business or project. The Jobcost reports are abbreviated income statements that track information at a micro level of detail. Manufacturing organizations will find them valuable. All the information in the system can be easily exported to word processors in a text file or spreadsheet. The system uses preprinted forms, which can be ordered for all invoices, checks, and the like.

ACCOUNTING FOR THE FEATURES

You can create your own chart of

accounts using one of Simply Accounting's six "starter companies" or input a chart of accounts from scratch. The system has a few limitations concerning accounts, though. For instance, it can handle up to only 1,000 ledger accounts, vendors, customers, employees, or projects for its jobcosting system.

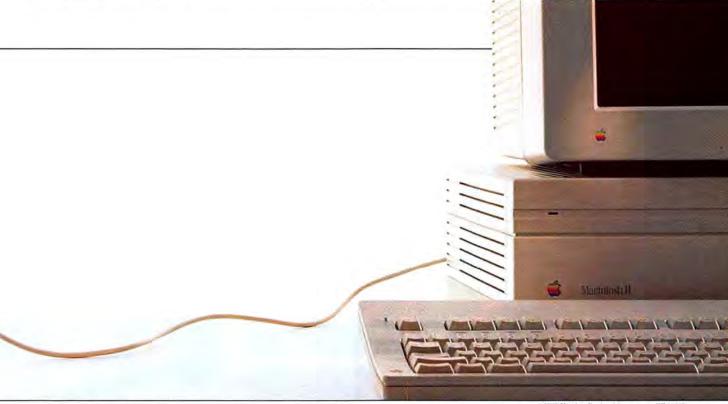
The payroll module handles all required payroll operations smoothly, and it automatically posts information to the Jobcost system as well as to the ledger. It also supports all necessary W-2 accruals, as well as state tax information. The accounts-receivable and accounts-payable modules use the open-invoice method to keep track of full as well as partial payments - a real plus in this system. The user can define the aging periods for invoices during the system installation, which helps relate those periods to the business' billing and collection policies.

Simply Accounting's inventory sys-

tem can be used by a broad spectrum of business, such as wholesalers, retailers, and manufacturers. The system affords a great deal of flexibility in the way it tracks information but is standardized on the average-weightedcost method. The program accommodates all adjustments and transfers, "flagging" predetermined reorder points when it happens upon them. The reports can be generated on either a margin or markup basis, and two diagnostic reports — one on quantity and the other an inventory synopsis are generated quickly and easily.

Simply Accounting is an equal to its competitors, with the exception of its limited reporting capability. From the perspective of performance the system also places highly. AppleShare is supported but is limited to single users.

The program does have some shortcomings. No password protection is built into the program, which leaves sensitive information such as payroll



© 1989 Hewlett-Packard Company PE 12905

\$1,395. Plus \$125 for an interface kit that connects simply and cleanly.

Call 1-800-752-0900, Ext. 214E, for an authorized Hewlett-Packard

dealer. And just wait till you try your hand at coloring.

It will be the most fun you've had since the first grade.

HEWLETT PACKARD Please circle 20 on reader service card.



records open to anyone with network access. We were also disappointed in its integration with the Macintosh's capabilities. The software felt like the IBM transplant it is.

INSIGHTFUL ACCOUNTING

One of the heavyweights (literally) of the accounting packages mentioned is Insight from Layered, Inc. This program comes in four large binders, one for each module — General Ledger, Accounts Receivable and Billing, Accounts Payable, and Inventory (each costs \$695). Multiuser accountspayable and accounts-receivable systems are available for \$895 each.

Once you've lugged the software to your Mac and cleared an area big enough to accommodate the documentation, you'll find that Insight is an exhaustive accounting system and that you're an exhausted accountant. The documentation, although voluminous, is informative and easy to use. Install-

ing and configuring the system is also easy.

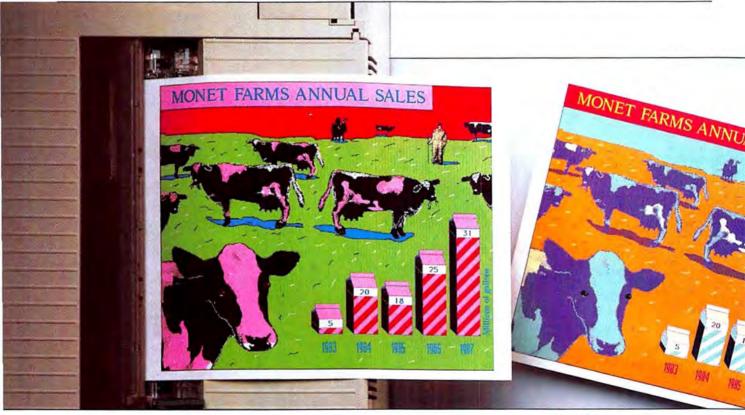
The software is patterned after the ancient but efficient ledger-card concept, wherein transactions are posted to ledger cards for specific accounts. These cards are then processed to produce reports. In depicting this and other accounting concepts on-screen, Insight makes outstanding use of the Mac's graphical interface. Icons are clean and crisp, as are the ledger-page designs.

In addition to the standard sets of financial reports you would expect, Insight offers a series of useful Expert Reports. These reports provide a general analysis of the information contained in the General Ledger. The reports themselves are broken down into two types: financial-statement ratios and pie charts.

The financial-statement ratios provide 12 ratios in three areas: liquidity, profitability, and asset management.

The liquidity ratios produced include the quick ratio, current ratio, debt-to-equity ratio, and the long-term debt ratio. The pie charts plot any financial statement as a single pie chart, or a series of pie charts. Slices can be expanded to show the detail behind them. And, to help interpret the numbers, tabular reports can be generated.

Profitability measurements generated are return-on-equity, return-onsales, return-on-assets, and operating margin. The asset-management ratios include inventory turnover, averageaccounts-receivable collection days, days' sales in inventory, and averageaccounts-payable payment days. You determine which accounts should be included in the analysis, as well as the time period covered by the analysis. The entire analysis can be graphed, and an on-line definition and interpretation of each ratio is available for those of you who don't have a Ph.D. in Managerial Accounting.



With the new PaintJet color printer from Hewlett-Packard.

Look at the possibilities. Instead of basic black and a few dull shades of gray look at the zip that color adds to graphs and charts. Overheads will command attention. And reports will have sparkling visual surprises tucked inside.

The PaintJet printer brings so





THE PROOF IS IN THE PACKAGING

Insight's Inventory, a perpetual costing system, is the most complete of all the systems in the packages mentioned here. Items can be valued using the LIFO (Last In, First Out), FIFO (First In, First Out), average, or last-cost method. Receipts can be batchentered, as can withdrawals and warehouse transfers; this cuts down the contention time for the system in a busy environment. Dynamic and flagged reordering are also included. The Inventory module provides a remarkable number of reports and runs smoothly without exception.

The Accounts Receivable and Billing module has a number of nice twists in it. The system can quickly perform on-line credit checks and credit reporting, which makes it quite valuable to a small business trying to manage its risk. In the end, this module produces a series of reports, organized by customer, that help to gauge customer profit-

ability and activity. These reports can be useful for targeting marketing strategies to customers.

The Accounts Payable module allows the user to quickly select payments by due date and instantly develop a cash-requirements schedule. You can automatically allocate expenses by vendor for easy departmental expense tracking. For companies with multiple

bank accounts, Insight offers a facility to disburse easily from multiple accounts. The management reporting is on a par with the other packages in the series.

PLAINLY THE HEAVYWEIGHT

Great Plains Software's package wins the bulk test. With seven sets of software and documentation, this

Figure 3: Chosen by MacUser as the best accounting software in 1986, Insight has Expert Reports that provide a general analysis of information contained in the General Ledger. All modules for this package are sold separately.

Account ID		-000	Description Cash			K
Account Typ	e Asset		Division No. 1	Beginning Balance	175,652.32	
Erate	Source	Pererice	[+617	Credit	Balance	в
1/04/86	/R00032	G/J00001	125,750.00		301,402.32	1
01/04/86		G/J00002		500.00	300,902.32	1
01/04/86	/D00019	G/J00004		180,747.76	120,154.56	1
11/04/86	GAT STATE	G/J00002	75,000.00		195,154.56	30
01/04/86		G/J00006	5,000.00	A COMPANY OF THE PARTY OF THE P	200,154.56	1
01/07/86	/000020	6/J00007		1,250.00	198,904.56	1
		9600 CS 7230]
300000			3 100 mm ()			4
						4
						4
						40
-	-	-				-
	-	Totals:	205,750.00	182,497.76	198,904.56	5
I Distant	H-SILE MARK	AND PARTY OF THE PARTY OF	NIED STREET	MANAGEMENT AND	NO SECOND CONTRACTOR	49
\$60000000			NAME OF TAXABLE PARTY.	STANDAY SANDONAL	AND ADDRESS OF THE PARTY OF THE	15
The state of the s		Self-Self-Self-Self-Self-Self-Self-Self-	THE REAL PROPERTY.	新水肿上外外 新发生的	A RESIDENCE OF THE PARTY OF THE	3.0

Now you can milk your Macintosh for all it's worth.

much to your work: 256 colors for the Macintosh II and 8 colors for the Macintosh SE. For just \$1,395. Plus \$125 for an interface kit that connects cleanly and simply.

Please circle 23 on reader service card.

We'd like to hear from you. Just call 1-800-752-0900, Ext. 688C, for your nearest authorized HP dealer. We'll be happy to send you a sample color page. Complete with cows.



Our cows were created using Pixel Paint © 1989 Hewlett-Packard Company PE 12906

Create Your



Albert, co-star of Disney's new
"Absent-Minded Professor," was created in
one day using HyperAnimator.

...actors that add life to your HyperCard stacks. Actors are ideal for interactive training, advertising, entertainment, and education. HyperAnimator is a powerful multimedia presentation tool which extends HyperCard. It represents the next generation computer interface. Put it to work (or play) for you today.

Hyper AnimatorTM



"Extremely intuitive. Great product."

— Jay Johnson, StakDek, Inc.

"Fascinating leading-edge technology."

— Roger Wood, HyperLink Magazine

"Slick!" - Brian Trusler, Hawaii Today

"This is just great. I'm so impressed."

— Yasuhiro Hayashi, Tokyo, Japan

Bright Star

14450 NE 29th Pl., Suite 220 Bellevue, WA 98007 (206) 885-5446

HyperAnimator is a trademark of Bright Star Technology, Inc. HyperCard is a trademark of Apple Computer, Inc. "Albert" D 1988 StakDek, Inc. All rights reserved.

Available from your favorite software supplier. Comes complete with HyperCard.

Please circle 110 on reader service card.



package weighs in at a hefty 28 pounds. The seven major modules are General Ledger, Accounts Receivable, Accounts Payable, Inventory, Purchase Order, Order Entry, and Payroll. Each is comprised of three volumes of documentation: a reference manual, learning guide, and orientation manual. Each of these modules costs \$795. Great Plains provides you with a multimedia approach to accounting. The tutorials consist of the reference manual, learning guide, and orientation guide. In the orientation guide, you get a guided tour on cassette tape of each module. Given Great Plains' sophistication, the time and energy the company has expended to train the user is fascinating. The learning guide provides an introduction that starts with computerized accounting ABCs and ends with the operation of the system.

The actual package looks and acts like a mainframe accounting system, even though it runs on the Mac. In fact, it was designed with this in mind; there's also a multiuser version available (Network Manager, \$995, works with the regular package to make it multiuser). Undoubtedly, Great Plains strove to bring big-system functionality to the Mac with its product, and it has succeeded.

The software is as easy to run as Checkmark Software's MultiLedger but is full of features and functions that make it a good bet in almost any small to medium-sized business.

REPORTING ON THE GREAT PLAINS

In Great Plains report modules, information can be printed on customized forms or on blank paper. Great Plains easily handles returns, which is a real plus for a wholesaling company. The analysis capabilities of the module are also strong. The print options for the reports are powerful. Aggregate accounts can be printed, as well as the detail behind them. Accounts with a zero balance can be suppressed, and percent-of-total assets can be calculated on the fly and printed on the reports.

The General Ledger has a few managerial accounting features built in that generate interesting reports, such as a sales-ratio analysis. The General Ledger can also print comparative statements, which place the current period's data against that of an earlier period.

The Chart of Accounts capability in Great Plains is the most powerful of any of the systems we've mentioned. An extensive list of customizations is available. Setting up and managing recurring transactions, which can be problematic in other systems, is simple with this program. An especially attractive feature is the comprehensive on-line help included in the program.

AN ADDED ATTRACTION

An additional module that Great Plains offers is the Executive Advisor. Using the vast database created by the accounting system, the Executive Advisor acts like a combination graphics program, report writer, and pseudo-artificial intelligence system. Executive Advisor produces more than 75 different reports that focus on your company's finances, customers, vendors, inventory, staff, and the like. Current information can be compared

Figure 4: The Great
Plains Accounting Series
has more modules to
offer than its
competitors. The
Executive Advisor is a
presentation package
made especially for the
series. With this module,
you can dress up your
reports with such graphic
elements as pie charts
and bar graphs.



with historical data, budget figures, or even a set of industry averages that come with the program.

Executive Advisor provides functionality similar to Insight's Expert Reports. The distinction is that Great Plains' software is a separate module, rather than being an integral part of the system. Executive Advisor is priced at \$595. The analysis the system produces — as well as its presentation — is top-notch.

THE ENVELOPE, PLEASE

Price Waterhouse didn't tabulate the votes for this contest, though Peat Marwick did test two of the packages mentioned here — Great Plains and Insight. But no accountant can single out one accounting package as the definitive one, because needs differ from firm to firm.

We have attempted to give you an insider's view of four of the top packages on the market. They naturally fall into two categories. In the low price range are Checkmark Software's MultiLedger and Payroll and Bedford

Software's Simply Accounting. Both of these packages can be used in small businesses or as starter systems. At the high end are Layered's Insight and the Great Plains Accounting Series, both of which are full blown systems for sophisticated, small to medium-sized businesses.

Many businesspeople have likened choosing an accounting system to choosing a business partner. The development and technical support teams of a company do become your partners when you select their package, so be sure to find out as much about each company as you can. Call the vendors to see what enhancements they have planned, as well as to gauge the responsiveness of their support staff. Smart businesspeople don't pick a partner they can't live with or don't like.

KEN LANDIS HAS BEEN WRITING ABOUT THE USE OF APPLE'S COMPUTERS IN PERSONAL AND PROFESSIONAL FINANCE SINCE 1981. IN THAT TIME, HE HAS PUBLISHED MORE THAN 200 STORIES ON THE SUBJECT.

Directory

Bedford Software Corporation

15311 N.E. 90th St. Redmond, WA 98052 (206) 883-0074 Simply Accounting, \$349

Checkmark Software, Inc.

P.O. Box 860 Fort Collins, CO 80522 (303) 484-3541

MultiLedger and Payroll, \$690 (\$395, MultiLedger; \$295, Payroll)

Great Plains Software

1701 S.W. 38th St. Fargo, ND 58103 (701) 281-0550

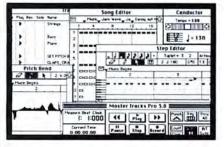
Great Plains Accounting Series, \$795 each for the following seven modules: General Ledger, Accounts Receivable, Accounts Payable, Inventory, Purchase Order, Order Entry, and Payroll; \$595, Executive Advisor module; \$995, multiuser Network Manager.

Layered, Inc.

529 Main St. Boston, MA 02129 (617) 242-7700

Insight, \$695 per module: General Ledger, Accounts Receivable and Billing, Accounts Payable, and Inventory; \$895 each, multiuser accounts-payable and -receivable systems.

Macintosh ™ Music Milestones

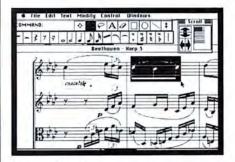


Master Tracks Pro 3.0™

The most sophisticated MIDI recording and editing package ever written. Unique graphic editing gives you complete control over your music. MasterTracks Pro 3.0™ now features complete SMPTE implementation thru MIDI Time Code.

Master Tracks Jr.

An excellent entry level sequencer that provides professional features without a professional price. Plus files are compatible with Master Tracks Pro.



NoteWriter™

NoteWriter is designed to produce publishable quality music; as complex as you like, but as easy to use as MacPaint™ or MacDraw™. NoteWriter provides several logical, precise and easy ways to publish music as fast as you could put shorthand on a pad.

Call (415) 726-0280 today to receive more information on our entire line of Macintosh music software.

PASSPORT.

625 Miramontes St. Half Moon Bay, CA
Please circle 58 on reader service card.

The Choice is Yours

Compare and Save!

For Your Information —

Apple Computer uses hard drives manufactured by Quantum for both their 40 and 80 megabyte Macintosh II. These Quantum drives feature an 18 ms access-time, and because of a built-in disk cache these drives can access information effectively at 12 ms. CDA can provide a Mac II with an Apple Quantum drive or with an Everex Quantum drive. Differences? 1. The Apple warranty is 90 days, the Everex warranty is 1 year. 2. Price! The Choice is Yours.

Macintosh II Systems

Apple 40 Meg Hard Drive Sugg. List \$8622 Pkg #9860

CDA Price \$6495

Apple 80 Meg Hard Drive Sugg. List \$9021 Pkg #9861

CDA Price \$6995

The above Macintosh II complete systems include:

- · Macintosh II Computer w/ Apple or Everex Hard Drive 1 Megabyte of Memory Extended Keyboard and Mouse 1 - 800K Disk Drive
- · Macintosh II Video Card

Everex EMAC 40 Hd Dr. Sugg. List \$8522 Pkg #9880

CDA Price \$6295

Everex EMAC 80 Hd Dr.

Sugg. List \$9821 Pkg #9881

CDA Price \$6695

- Apple RGB Hi-Res. Color Monitor
- · ImageWriter II Printer w/Cable
- · HyperCard Software
- · Diskettes Box of 10
- 1/2 Case of Computer Paper
- · Dust Covers for Macintosh, Keyboard and Printer
- Mouse Pad

Macintosh IIx 80 Meg Color System Complete System Includes: • Macintosh IIx Computer w/

- 80 Meg Apple Hard Drive 4 Megabytes of Memory Extended Keyboard and Mouse 1 - 1.44K Disk Drive
- Macintosh II 8-Bit Video Card
- Apple RGB Hi-Res. Color Monitor
- ImageWriter II Printer w/Cable
- HyperCard Software Diskettes Box of 10
- 1/2 Case of Computer Paper
- Dust Covers for Macintosh, Keyboard and Printer
- Mouse Pad

Sugg. List \$9271 Pkg # 8906

CDA Price \$7995

Macintosh Plus **Entry System**

Complete System includes:

- · Macintosh Plus w/ Megabyte of memory 1 Internal 800K Drive
- Keyboard & Mouse Cutting Edge 800K Ext. Drive
 Apple ImageWriter II w/cable
- HyperCard Software
- · Diskettes-Box of 10
- · Computer Paper Pkg of 500
- Mouse pad

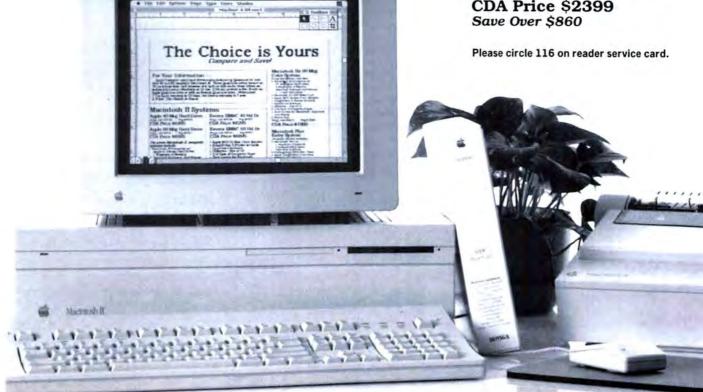
Sugg. list \$2760 Pkg #8910

CDA Price \$2075 Save Over \$680

Macintosh Plus 20 Meg System

Same as above system w/one 800K disk drive and an external Everex 20 Meg. HD. Sugg. list \$ 3260 Pkg #8911

CDA Price \$2399



CDA Makes Macintosh Affordable

Macintosh SE Super System

Complete system include:

Macintosh SE Computer w/ 2 Internal 800K Drives 1 Megabyte of Memory Keyboard and Mouse

· ImageWriter II Printer

· ImageWriter cable HyperCard Software

 Diskettes-Box of 10 Computer Paper-Pkg of 500

· Dust Cover for Macintosh SE Dust Cover for ImageWriter II

Mouse Pad

Sugg. list \$3980 Pkg #8970 CDA Price \$3099

Macintosh SE Hard Disk 20 System

Same as SE Super System except includes one 800K floppy drive and an internal Apple 20 Megabyte Hard Disk. Sugg list \$4469 Pkg #8971

CDA Price \$3599

Macintosh SE Hard Disk 40/2 System

Same as SE Super System system except includes one 800k floppy drive and an internal Apple 40 Mb hard disk and 2 megabytes of memory. Sugg list \$5180 Pkg #8972

CDA Price \$3899

Macintosh SE/30 System

Same as SE Super System system except includes the new SE/30 featuring a 68030 processor and one 1.4 megabyte floppy drive. Sugg list \$5180 Pkg #8995

CDA Price \$3949

CDA offers Complete Ready-to-Run Systems. If you do not see a system that meets your needs, call and our knowledgeable sales people will help design a system specifically for you.

Call today for our low prices on over 900 popular software titles for the Mac.

Check for our monthly specials on Compuserve's electronic mall. — GO CDA



Macintosh SE/30 Hard Disk 40 System

Same as SE Super System system except includes the new SE/30 with a 40 meg. HD. Sugg List \$5680 Pkg #8996

CDA Price \$4349

Macintosh SE/30 Hard Disk 80/4 System

Same as SE Super System system except includes the new SE/30 with an 80 Mb hard disk and 4 megs of memory Pkg #8997 Sugg List \$7380

CDA Price \$5599

Apple Hardware

Mac Plus Mac SE 2 Dr.- Keyboard \$1349 \$2595 Mac SE/20-Keyboard \$3149 Mac SE 40/4-Keyboard Mac SE/30- Keyboard Mac SE/30 HD40-Keyboard \$3395 \$3449 \$3849 Mac SE/30 HD80 4Meg w/Keyboard \$5095 Mac II w/Extd.Keyboard \$3999 Mac II/40 w Extd. Keyboard \$4999 Mac II 40/4 w Extd. Keyboard \$5849 Mac IIx w/Extd. Keyboard \$5549 Mac IIx 80/4 w Extd. Keybd \$6249 Monitors

329 Apple Mac II Monochome 799 399 Apple Mac II RGB Monitor SS Apple 4 Bit Video Card
Apple 8 Bit Video Card
Apple 8 Bit Video Enhance.
Sony CPD1303 RGB
E-Machines T16 519 119 675 \$2779 E-Machines C20 \$4295 Magnavox RGB w Tilt/Swivel \$ 599 NEC Mac Sync \$ 599 Radius Monitors Please Call RasterOps19" Color Trinitron \$3095 RasterOpsColor 108 Board \$1149 RasterOps Color 104 Board \$3429

Sigma LaserView SE

Sigma LaserView II

w/Video Board

Sigma PageView SE \$ 799 SilverView 256 Grey Scale \$2399 SuperMac Monitors Call **Printers** (prices include required cable) \$ 499 \$ 189 Apple ImageWriter II Image II Sheetfeeder Apple ImageWriter LQ Apple LaserWriter IISC \$1099 \$2199 Apple LaserWriter IINT \$3795 Apple LaserWriter IINTX Apple Toner Cartridges \$5395 \$ 109 GCC Personal Laser Plus \$1575 \$ 549 \$ 799 \$5359 GCC WriteMove HP Desk Jet QMS PS810 Orange Micro Grappler C/MAC/GS (9 pin) Grappler LQ (24 pin) Grappler LS Serial Laser \$ \$ \$ 89 Drives Apple 3.5 Disk Drive \$ Cutting Edge 800K
CMS Enhancements \$ 179 \$ 587 789 503 \$

Compact SC30 (38ms) Compact SC45 (29ms) MacStack SD20U (65ms) MacStack SD30U (38ms) S 567 MacStack SD40U (25ms) \$ 699 789 779 732 MacStack SD45U (29ms) 55 MacStack SD60U (40ms) Tape Stack 60 \$ Internal PRO SE-30 (38ms) \$ Internal PRO SE-45 (29ms) Internal PRO SE-65 (32ms) \$ 649 \$ 839 \$1099 Internal PRO SE-80 (19ms) Everex EMAC 20 Deluxe (40ms) EMAC 40 Deluxe (28ms) EMAC 60 Deluxe (29ms) \$ 549 \$ 799 \$ 999 EMAC 80 Deluxe (19/12ms) \$1279 499 799 \$ \$

EMAC 20D (65ms) EMAC 40+ Impact (19/12ms) EMAC 60 Impact (19/12/ms) EMAC 80 Impact (19/12/ms) EMAC 60 T 60 Meg Tape Everex Internal Hard Drives 969 \$1249 \$ 786 EMAC 20iD (Mac II) or 20SE \$ \$ 689 \$ 889 EMAC 40iD (Mac II) or 40SE EMAC 60iD (Mac II) or 60SE EMAC 80iD (Mac II) or 80SE \$1149

EMAC 150T Tape Backup Invin 40 Megabyte Tape Backup \$ 995 80 Megabyte Tape Backup \$1195 Rodime Drives

Plus External Series 20 thru 140 Megabytes Please Call RX Internal Series 20 thru 140 Megabytes Please Call

Input Devices Abaton ProPoint \$ 89 \$ 199 Apple Extended Keyboard Data Desk 101 Keyboard ABD
w/MasterKeys Software \$ 137
Kensington Turbo Mouse ABDS 108
Memory/Speed Upgrades

1 Megabyte Simms Dove Tool Kit Dove MacSnap 2SE Call \$ 24 \$ 435 MacSnap Plus2 (Mac Plus) \$ 435 **Accelerator Boards**

Dove SE Marathon Accel. \$ 579 \$1195 Irwin Accelerator SE25 Irwin Accelerator SE XL16 Radius 25 Accelerator \$1375

IBM in your Macintosh
Apple 5.25 Drive \$ 329
AST Mac 86 (Mac SE) \$ 479
AST Mac 286 (Mac II) \$1099
DaynaFile 360K IBM Drive \$ 519
DaynaFile other configurations Call

Scanners Please Call Abaton Scanners Apple Flatbed Scanner \$1499 Thunderscan 4.0 \$ 189 Lightning Scan NEW! Call Modems Abaton Interfax Modem 345 S

AppleFax Modem SS 595 Epic Internal 2400 319 Practical 1200 Mini Practical 2400SA S 85 S 185 Practical 2400SA with cable 225 and MicroPhone Software Shiva Netmodem V2400 449 **Surge Protectors**

Kensington System Saver Mac Plus System Saver SE 5555 69 59 MasterPiece Mac II Music Apple MIDI Interface S 82 Bose Roomate II Speakers S 229 Passport MIDI Interface s 99 **Carrying Cases**

Targus SE/Plus Case Targus SE/Ext. Keyboard s 59 s 69 Targus ImageWriter Case S 49 Accessories ADB Cable 7ft - Extra Long 25 Anti-Glare Filter for Plus/SE SSS

34

Super-Base for Plus/SE Mac II Monitor Extension

A complete line of Apple Systems, Hardware, Software and Accessories 30-Day Customer Satisfaction Period At CDA our goal is customer satisfaction. If you're not 100% satisfied simply return the purchased goods within 30 days of receipt for a quick, courteous refund (software, media, internal components and shipping charges excluded). Service and Support

CDA offers a full 90 day warranty. **Apple Computers** - CDA is not an authorized Apple dealer, therefore during the 90-day warranty period Apple items must be returned to CDA for warranty repair. Tech-support: Mon-Fri 9am-4pm, (201)832-5004.

Shipping Information and Policies

Write for CDA's free Apple Users' Catalog

\$1799

\$1799

Shipping Charges - UPS Ground Shipping, add 3% (\$3.50 min); UPS Blue 2-day service and Alaska, Hawaii. PR, add 6% (\$6.50 min); APO/FPO Shipping, add 8% (\$8.50 min); And Alaska, rawalt, Pk, and 6% (\$6.50 min); APO/FPO Shipping, and 6% (registered trademark of International Business Machines Inc.



CDA Computer Sales 1 CDA Plaza

PO Box 533 Califon, NJ 07830
Mon-Fri 9am-10pm, Sat. 9am-5pm EST
Cust. Service (201) 832-9007 • Fax# (201) 832-9740
Compuserve's Electronic Mall- GO CDA

US/Canada Call Toll Free 800-526-5313

NJ/Outside US 201-832-9004

MACIAX

oo bad for Al Capone. If the Mac had existed in his time, maybe he would not have spent so much time in the slammer.

Thanks to a bumper crop of tax templates and stand-alone applications, the Mac is becoming the tax machine of choice. With the Mac's ease of use and the intuitiveness of tax programs, you can set aside the abacus, adding machine, and even your phalanges (as far as counting is concerned). Not only do these programs perform all calculations for tax forms, but also they save you countless trips to the post office or library by providing almost all forms, worksheets, and schedules — all approved by the IRS.

Why the fuss over Mac tax applications? One new wrinkle this year is the evolution of accounting packages. Many of these packages are designed to export data to your electronic tax forms. Although it has been possible to export data to your tax forms line by line for a couple of years (see "Marriage of Convenience," March '87), now some applications can transfer practically all the information necessary to complete tax forms with a simple double-click of the mouse.

Returning to this year's lineup are Tax Templates from Heizer Software and EZ Ware (EZTax-PREP) along with the full-blown tax package from Softview, MacInTax. In the freshman class, there's Bottomline from CompuCRAFT, and Tax Stacks, a Hyper-Card stack from Stackware. As is true every year, by press time we have seen only last year's forms and prerelease versions of this year's.

All the tax templates require either Excel or Works. A few work with

MultiPlan, although MultiPlan lacks macros. While all the templates are straightforward tax forms, you should be familiar with Excel, MultiPlan, or Works — learning the application while figuring out the template is not optimal. Although the manufacturers maintain that they've thoroughly tested their programs for bugs (in formulas), they advise that users check the figures on their returns carefully. Ultimately you — and not a tax software manufacturer — are responsible for what you send into the IRS.

TAX PROGRAMS? WHO NEEDS 'EM?

Many tax preparers use the Mac to do their clients' taxes with the same software that's available to you. Some packages, like MacInTax, provide corporate forms for Fortune 500 companies as well as for individuals who have incorporated their businesses. I expect to see professional tax preparer packages on the Mac soon; perhaps next season. Softview is supposedly going to make electronic filing available for MacInTax forms this season, but I will be surprised if it is ready this year. It isn't such a loss if they don't because the IRS doesn't accept electronically filed returns from individuals yet only returns from specially registered tax preparers and those requesting a refund are eligible.

Are these packages absolutely necessary for filling out a 1040EZ? Probably not, considering that you have few financial variables in your tax equations and that the form takes about five minutes to complete by hand anyway. But if your annual financial situation requires more than a 1040EZ, you're probably a good candidate.



RORCE

It
may not
be
aspirin,
but
it'll cure
what ails you.



PASSPORT TO THE HORLD - ACCEPTED ON ARCHITICS, CASH AND PACEPTED

Many consider buying tax software just to save the cost of having a service do it for them. I don't think tax preparers should worry about losing business over these programs, however. In fact, they may find they will do more business by incorporating a tax program into their operation. Tax programs save a lot of data entry and cross-referencing. More importantly, they give users better control over their own financial situations.

As a rule of thumb, I fill out my own forms and show them to my accountant before filing them. I recommend this to pretty much everyone. You will incur only a minimal fee from your tax preparer, and you will sleep better not having doubts about how good a job you did. The most surprising thing about filling out income tax returns on your Mac is how enjoyable it is. This may not be apparent at first because there is so much to learn. But over time, you may find yourself, as I do, actually looking forward to tax season.

INSIDER TRADE SECRETS

I have two secrets that make prepar-

ing taxes a breeze. While they are obvious tips, it is amazing how many people don't use them. First of all, use a home accounting package all year round. Also save last year's form as a dummy. Sure, most receive that advice with the same enthusiasm they do a reminder to go to the dentist twice a year, but it's not that bad, and it pays big dividends.

In the old days, it took me a week's worth of evenings with a good part of the weekend thrown in to do my tax returns (which tend to run over 20 pages). Now I get most of it done in an afternoon. The other advantage to using an accounting package throughout the year is that you know how you stand all year long and not just at tax time when the accountant tells you the bad news.

THE STAND-ALONE CHAMP

There's only one program that is an independent application — MacIn-Tax. It's so good that it has literally driven the competition from the market. This year's version has over 40 forms, schedules, statements, and

Untitled / Form 1040

W-2 Summory: Employment Income

1988 Form W-2 (Employment) Information

Step for year pursual records

Jean Louis Sculley

111/22/3334

Check
If for Spouse

100 W-2 Summory/Wages-a Itemization

100 W-2 Summory/W

Double-clicking on a line of your tax form frequently opens another window in MacInTax. Note here that double-clicking on the wages line opened a W-2 worksheet. Double-clicking on a line in it produced an itemization window handy for totalling figures, showing the derivation of a figure, or just leaving yourself notes.

Are You Still Naked?

If you're not using *The NightWatch* & *MacSafe* to protect your hard disk files, you're leaving your work naked. Anyone with access to your Macintosh can browse freely through your files — even changing them without your knowledge, or innocently leaving a virus behind. And it could be tonight!

With *The NightWatch*, you can shut down your hard disk securely. *The NightWatch* stands guard, preventing unauthorized access or erasure of your hard disk. To unlock your hard disk, start up with a *NightWatch* user disk & enter your name and password. A simple & elegant security solution.



If you share your Mac or use a network, then <code>MacSafe</code> can help you restrict access to your documents & applications. You create folder-like safes and place your files inside to protect them from prying eyes. And <code>MacSafe</code> now includes <code>MacSafe</code> Assistant so you can move files and "project sets" into and out of safes from the Control Panel. With <code>MacSafe</code>'s true password protection (no encryption required), no one can get into your safes without the password. Simple, familiar, & fast.

Call your dealer and join our satisfied customers — Fortune 500 companies, universities, and small businesses — in protecting your valuable files with *The NightWatch* & *MacSafe*.



Call your dealer or Kent+Marsh Ltd.

800 • 325 - 3587

1200 Post Oak Blvd. • Suite 210 • Houston • TX • 77056 • (713) 623-8618 • d0291 AppleLink



Please circle 25 on reader service card.

worksheets. It also has special State forms for California and New York for an extra fee.

For first-time preparers, this package is great because you have so much help. They even give you a Macintosh tutorial. In filling out any form, you have on-line, context-sensitive help courtesy of the IRS booklet. You just double-click on the text next to a line or group, or select a line or group and choose Instructions from the Edit menu. An instruction window pops onscreen instantly, explaining the particular line. If you have multiple forms and schedules to fill out, MacInTax will help you keep track of what you've completed and what you have left to do. Pulling down the Schedule or Form menu will cause a list with the names of the forms and schedules that are open to appear. Incomplete forms and schedules are denoted by an outline font; completed forms and schedules, with an underline.

When starting, you see a screen explaining who may need each form. You can decide which forms and schedules you need. It is advisable to have all schedules and forms you need open at once. Information carries over to the appropriate line on forms that are open, saving you from having to reenter data and from making careless mistakes. You can toggle among all the open windows from the menu bar. To print out your forms, you can print from the Finder or through the program. Either way, the output will be on forms you can submit to the IRS.

MacInTax also has an Error Scan feature that locates missing, estimated, and erroneous data. Just press Option along with either Return, Enter, or Tab. The program will also scan backward if you hold down the Shift key in combination with the Option and Enter, Return, or Tab key. Mac-InTax performs another error/incomplete check in the printing routine: If you choose to print any form that contains an error or is incomplete, the program asks you if you want to print it with these mistakes. You used MacIn-Tax last year and have saved the file? MacInTax has a converter that will transfer all appropriate data from last year's return over to this year's.



Tax Templates from Heizer's Excellent Exchange this year include Chedit, a check register and an Excel template, so it is not surprising that it summarizes the entries and inserts them into the 1040 templates.

			and credit card Me tire numbers (-).	vica Dredit C oter Card Dredit C Check I		0.00 00.00 00.00 00.00
×	Checz.	Date	Description	Amount	Accessit	Rumine Check Book Balance
-		H MAY	BANK RECORDE LIATION-			PPIARY>
	wlast:		4	Vica Dredit D		30,00
			and credit cord Mac	rier Card Dwdill	ard Palance:	0.00
				Check C	body hallman	D 400 00
		dered as nego	iro numbers (-).		Account	
aum.	ants are an			Amand	Account	Direing Duct
aum.	ants are an	Date	tire numbers (-). Description	Amand	Account	Dork Balance
×	Eneck *	Date 12/15/90	iro numbers (-).	Amand	Account	Direing Duct
×	Eheck *	Date 12/15/90	Description Check Book Dogin Bal (nog. **)	(10,000 00) 100,00	Account DeginDeg	Dark Balance 10,000.00
×××	Eneck P	12/15/00 12/15/00 12/15/00	Deccription Check Book Dogin Bal (nog. *) Declar	(10,000 00) 100,00	DoginO-p Fielical	Dork Balance 10,000.00 7,700.00
×××	DEP 100 101 Cash	12/15/00 12/15/00 12/15/00	tra numbers (-). Description Check Bods Degin Bal (neg. *) Declor Heart Marksett Direct Heart Marksett	(10,000 do) 100,00 1,000,00 20,00 50,00	BeginDer Figural Merintin Travel Travel	Dark Balance 10,000.00 7,700.00 9,900.00
×××	DEP 100 101 Cash	Date Date 12/15/90 12/15/90 12/16/98	ire runders (-). Description Check Book Dogin Dal [neg. *) Design Heart Martasat Darner	(10,000 00) 100,00 1,000,00 20,00 50,00 100,00	BeginDer Fredical Meritation Travel	David Balance 10,000.00 9,900.00 8,900.00
× × ×	DEP 100 101 Cash	Date 12/15/00 12/15/00 12/15/00 12/15/00 12/16/00 12/16/00 12/17/00 12/17/00	tra numbers (-). Description Check Bods Degin Bal (neg. *) Declor Heart Marksett Direct Heart Marksett	(10,000 do) 100,00 1,000,00 20,00 50,00	BeginDer Figural Merintin Travel Travel	David Balance 10,000,00 7,700,00 9,900,00 8,900,00 6,900,00

This all sounds great, doesn't it? It does carry a hefty price tag (as Mac tax packages go anyway) of \$119 (\$55 for upgrades). But MacInTax is best for beginners. You'd better know what you're doing as far as Excel is concerned when you work with a template.

THE PEOPLE'S TEMPLATES

Tax templates are a cheaper alternative to MacInTax, ranging from \$35 to \$100. Unfortunately, they not only assume a user's knowledge of the Mac but also require a certain competence in Excel. You definitely have a lot less hand-holding with these.

Steve Willett's Tax Templates from Heizer Software are my favorite. In the three years that these templates have been around, they haven't changed much. New to the package are 34 more federal forms, including a depreciation worksheet that uses different methods for calculating depreciations. There's also an electronic checkbook that consolidates records for your taxes along with special forms for California and New York. Businesses can get their own tax forms for an extra \$45; more than 20 forms come with the package.

With Tax Templates as with Mac-InTax, you should open up all the forms needed to complete your taxes—the data transfers easily among the open forms. Furthermore, you should keep all the forms you're using open at all times when preparing your taxes. To keep operations moving along quickly, turn off Auto Calculation as this will keep your work at a sluggish pace. To calculate, select that option from the Utilities menu or press Command—. When moving from one sheet to another, calculate your input.

This operation will put the correct information into protected cells and clear up #REF errors (#REF appears whenever there is an incorrect entry or a skipped line).

To print out completed forms, just select the Print option from the File menu. To avoid any printing errors, make sure the forms you're printing use Helvetica 10-point type. Also, to get regular-sized output from a Laser-Writer (the on-screen display was designed to be viewed on a Mac II), change the Reduce or Enlarge box in the Page Setup option under the File menu from 100 to 86 percent.

TAX TEMPLATES MADE EZ

EZ Ware, which has made tax templates longer than any other company mentioned here, has not changed its templates much this year. It has no corporate forms, though it continues issuing a separate package for limited partnerships. EZ Ware prepares Form 1065 and carries over the limited partnership information from year to year. EZTax-PREP 1065 offers nearly 30 forms and state forms for California, New York, and Pennsylvania (for an extra \$15 each).

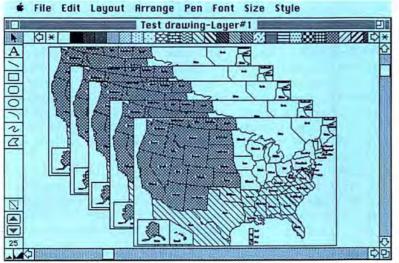
Unusual features in the EZ Ware template package include a live window always visible at the bottom of the screen showing the aggregate growth index (AGI), tax rate, and your current tax bill. It also has its own fuzz buster of sorts — the Audit Alarm. This alert sounds whenever your deductions stray too far from the national average. This is a warning that you run a risk of having your return flagged by the IRS computer. There's a graph that works with Audit Alarm to show how your deductions compare



(Auit Wasting time.

	F500	=D500	+E500				
			Fill D	own			
	A	В	C	D	E	F	1
1	Base Point	1st Quarter	Q-2 YTD	Q-3 YTD	Foreign	Total YTD	
2	11.50	23.50	35.00	58.50	93.50	152.00	100
3	12.00	24.00	36.00	60.00	96.00	156.00	
4	12.50	24.50	37.00	61.50	98.50	160.00	
5	13.00	25.00	38.00	63.00	101.00	164.00	
6	13.50	25.50	39.00	64.50	103.50	168.00	
7	14.00	26.00	40.00	66.00	106.00	172.00	
8	14.50	26.50	41.00	67.50	108.50	176.00	-
q	15.00	27.00	42 00	69.00	111 00	180 00	(
191	256.00		524.00	792.00	1,316.00	2,108.00	K
192	256.50	268.50	525.00	793.50	1,318.50	2,112.00	- 1
193	257.00	269.00	526.00	795.00	1,321.00	2,116.00	1
194	257.50	269.50	527.00	796.50	1,323.50	2,120.00	
195	258.00	270.00	528.00	798.00	1,326.00	2,124.00	
196	258.50	270.50	529.00	799.50	1,328.50	2,128.00	
197	259.00	271.00	530.00	801.00	1,331.00	2,132.00	
198	259.50	271.50	531.00	802.50	1,333.50	2,136.00	
199	260.00	272.00	532.00	804.00	1,336.00	2,140.00	r
500	260.50	272.50	533.00	805.50	1,338.50	2,144.00	-
01					The state of the s		K
۵Γ							COLE

Excel with Excel. It takes almost 17 seconds to fill this spreadsheet on the Mac SE. Or less than 4 seconds with the Excelerator XL25 board.



Be quicker on the draw. You can draw this on the Mac SE in about 42 seconds. Or under 6 seconds with the Excelerator XL25 board.

Enough of this dillydallying.
If you're doing business with a
Mac, you're spending time you don't have
to spend.

Starting now, you can put a new fleet of power products from Irwin to work on your Mac.

And fly through all sorts of productivity tasks like never before.

If that's beginning to sound like blue sky, just take our Excelerator™XL25

board as hard and fast proof.

It drives a Mac SE up to eight full times faster.

That's right. Faster than a Mac II. Or faster than you can clap your hands.

And not just on Excel and MacDraw* II like we've shown you here.

But on data bases like FileMaker* II. Where a 1,500record sort that takes almost 2 minutes on a Mac SE is wrapped up in less than 12 seconds with the help of the Excelerator.

On word processors like MacWrite* 5.0. Where a 46-page report is opened in less than 30 seconds instead of over 2 minutes.

And on and on. Because with an onboard math coprocessor, the Excelerator moves things even faster. Up to 100 times faster on all those number crunching jobs that make a Mac dawdle.

Or for that matter, you can access up to 8 megabytes of high speed memory. In no time at all.

And with that, we're back to our time-saving point.

The Excelerator XL25 is just one of the new MacPower™ products from Irwin. Products that include high-performance accelerators, flicker-free monitors

and no-hassle tape backups.

From the people who already back up more people than anybody.

Any and all of which can make you many times more productive.

To see for yourself, take a walk over to your local computer store.

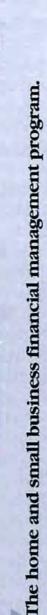
Or just call 1-800-222-5871 for the name of the dealer nearest you.

So. What are you waiting for?

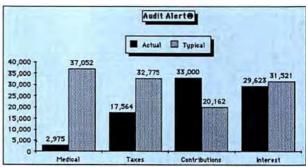








EZTax-PREP includes an Audit Alert, a chart comparing your deductions with IRS averages. Presumably, if you are significantly above the average for your AGI, you may trigger an audit. (This chart is an example only. The data used is from an earlier tax year.)



Actual deductions compared to typical deductions, based on Adjusted Gross Income

to the national average.

EZTax-PREP 1040 is more expensive than the other templates on the market, but it does offer a lot of extras. For instance, there are dot-matrix paper versions of Form 1040 for Image-Writer owners and transparencies of Form 1040 for those who don't have a PostScript-compatible printer. If you happen to have a PostScript printer, then EZ Ware provides you with a special LaserPrep1040 (copy this into your System Folder and then select it through the Chooser to get the official form), which prints out the official form from a LaserWriter. In any case, you can submit any of these forms to the IRS.

THE BOTTOM LINE

The folks at CompuCRAFT went to great lengths to have their package, Bottomline, approved by the IRS. The brief manual is a miniencyclopedia of official tax form trivia. For instance, did you know that the approved font for tax forms is Helvetica 10-point? And I'll bet you didn't know that the weight of the "chemical wood writing paper" for the official tax returns needs to be at least 18 and preferably 45 pounds.

Would you trust your taxes to this stack?
Actually, behind the cornball humor is a better tax preparation program for beginners than you might expect, and it is the cheapest alternative for those who don't own Excel.

All this trivia aside, CompuCRAFT is making a strong play for a piece of the Mac tax template market. It offers a novel approach with its template package by getting users to subscribe to a series of templates. This is in anticipation of new tax forms (to reflect any changes in tax laws) throughout the years as they are available from the IRS. This Excel template package includes 50 forms, schedules, and worksheets for personal and business returns.

Like Heizer's entry, Bottomline requires you to have all the necessary forms open so data can transfer from one schedule to another. A Window menu lets you toggle among the open forms. No special printer prep is needed with these templates — they'll print out in normal printer operations.

STACKING THOSE FORMS

Sooner or later, you knew a Hyper-Card tax stack had to appear, with the popularity of HyperCard and all. What's surprising about HyperCard Tax Stacks from Stackware is how well they work. You can click between the top and bottom of any form without any special controls (though printing may be slow because of Hyper-



Software Ltd., Suite 450, 11222 La Cienega Blvd., Inglewood, CA 90304, Phone: (213) 410-9527

Please circle 140 on reader service card.





Card). For now, there are 30 official IRS forms and schedules along with IRS instructions from within the program.

Tax Stacks is obviously aimed at novices — I was tipped off by the questionnaire style of the package and the "Yankee Doodle" sound track at the beginning. This inquiry insults your intelligence by asking questions in elementary language to help you decide which form is for you and to set up personal data. And I think the inclusion of tax jokes is tacky.

You must go through the questionnaire each time you want to change or add data. Once you've completed a template, however, you do not have to do it again.

Beyond the questionnaire, the stack performs wonderfully. The forms and schedules appear in half-screen increments, and buttons let you toggle between different forms. Analyze and project your tax situations for up to 45 years in the future with EZTax-PLAN. Information from these analyses can be transferred to tax preparation programs like EZTax-PREP.

	Persplan			
*** EZTex-PLAN Copyright @1985 -	1988 by EZWar	e Corporation. Y	88-7.0 ***	
Kermit	1987	1988	1989	- 0
TOTAL TAX (53)	4,722	4,799	4,989	
INCOME TAX (37)	3.811	3,797	3,947	
MARGINAL TAX BRACKET (37)	28%	28%	28%	
CREDITS (42,46)	0	0	0	
SELF-EMPLOYMENT TAX (48)	911	1,002	1,042	
ALTERNATIVE MINIMUM TAX (49)	0	0	0	
TOTAL TA. (53)	4,722	4,799	4,989	
INTERMEDIATE RESULTS				-
Capti Getn/Loss (14)	1,900	0	0	
Investment Income	4,490	2,693	2,601	
Pension - Amount not Taxable (16)	2,700	0	0	
AGI for Rental Loss Limit (17)	32,880	33,296	34,435	
Rental Loss Limit (17)	(25,000)	(25,000)	(25,000)	
Pessive Loss Dislyd Pre 10/23/86(17)	0	0	0	
Social Security - Wksht Line 9 (20)	14,610	15,295	16,713	
Earned (IRA) - Filer (24)	26,440	26,354	27,407	

At \$69.95, Tax Stacks is another inexpensive alternative for those who don't own Excel, and it is easy to use.

FUTURE MAC TAXING

For now, the standards in the Mac tax market are MacInTax and the Excel template packages. But what of the future? Excel is going to have some competition in the spreadsheet market from Wingz and Full Impact. This means that Excel template packages along with their manufacturers will have to make room for other templates.

In fact, I expect to see some templates that work with these other spreadsheet programs soon. I also suspect that templates will be made to work with major database applications—expect a template for Panorama in the near future too.

Being Prepared

ou are a shoe box accountant: Every April 14, you reach for that box with overflowing receipts in preparation for that all-night ritual of preparing and filing your income taxes. Somehow, there's got to be a better way.

The only way your taxes will be any easier next year is if you start planning now. One solution is to use a personal accounting package. Accounting packages, financial planning software, and tax programs are now designed with the idea of sharing data (see "Accounting for Taste" in this issue).

Among the financial planners that share data are Managing Your Money from MECA Ventures (see "When Your Money Matters"), EZTax-PREP by EZ Ware, and TaxView Planner 1988–1992 by Softview. EZTax-PREP lets you project your future returns based on previous years. For instance, by entering information from your 1987 return, you can have a pretty good idea of how your 1988 return will look.

EZTax-PREP bases its projections on the Consumer Price Index (CPI) and the Personal Growth Index (PGI). The CPI allows you to adjust future predictions for an annual inflation rate. The PGI allows you to predict your own income growth as an annual percentage. You can make tax projections for any period from next year to 45 years from now.

TaxView Planner lets you explore five-year cumulative results of five tax alternatives — all within a single study. For instance, you want to see what your tax situation will be for the next five years under the following scenarios: your current situation, if you took out a car loan, if you refinanced your home mortgage, if you invest in rental property, and if you invest in a limited partnership.

Worksheets resulting from these scenarios project information for wages, adjusted gross income, and total tax liability as well as other information. The figures in these worksheets are adjusted by inflation, tax law changes, and your what-if data. TaxView has updated tax tables from 1988 to 1992 and includes new IRS Form W-4 and Form 1040EZ. Quicken from Intuit, Managing Your Money from MECA, and MacMoney from Survivor Software have all been communicating with Softview on the details of preparing a year-end report that exports relevant information to your tax forms in MacInTax with a few mouse clicks. I am uncertain about how well this last-minute effort will work this year. For further information, contact the relevant company.

Directory

CompuCRAFT

9034 Arrow Grass Way Highlands Ranch, CO 80126 (303) 791-2077 Bottomline, \$49.95 for a one-year subscription

EZ Ware

P.O. Box 620 29 Bala Ave. Bala CynWyd, PA 19004 (215) 667-4064 EZTax-PREP, \$99.95 Federal; \$69 State EZTax-PLAN, \$79

Heizer Software

P.O. Box 232019 Pleasant Hill, CA 94523 (415) 943-7667 Steve Willett's Tax Templates, \$35 Federal; \$15 State; and \$45 Business

Softview

4820 Adhour Lane, Suite F Camarillo, CA 93010 (805) 388-2626 MacInTax, \$119; upgrades \$55 TaxView Planner, \$79

Classical.

SuperMac™has been making Macintosh*classics since 1985.

Like DataFrame™20, the first SCSI drive. Spectrum, the first color video card. The first large-screen displays for the Macintosh II. And PixelPaint, the first color paint program for the Mac*II.

Now there's a new generation of standards. Lasting investments that

help you and your Mac perform brilliantly. In whatever you do. In color or grayscale graphics. In true color. In mass storage. In business. Or in the arts.

Add SuperMac to your repertoire. And create some classics of your own.

Available now at authorized SuperMac dealers nationwide.





485 Potrero Avenue, Sunnyvale, CA 94086 (408) 245-2202

SuperMac, DataFrame and PixelPaint are trademarks of SuperMac Technology. Macintosh and Mac are registered trademarks of Apple Computer, Inc. Un dimarche is in Grande-Jatle (1884-1886) by Georges Seural. Photograph courtesy of the Bettmann Archive. Street copyright © 1988 Bert Monroy.

Hardrock.

January 1986. Macintosh*Plus takes the stage. But SuperMac™steals the show. With DataFrame. The first SCSI hard drive for the Mac. And we're still the superstar in Macintosh mass storage.

Our new DataFrame drives provide full SCSI partitioning support. Fast seek. Fast access. From 30MB to 100MB internal for the Mac SE. 100MB to 330MB internal for the Mac II. 20MB to 330MB external for

any Macintosh. And a brand name that stands for rock-hard reliability. In desktop publishing. In color graphics. In whatever you do.

And they include a new manager. Which adds flexible partitioning, greater security and virus control. Plus DiskFit™backup and restore software, and SuperSpool™and SuperLaserSpool™print spoolers.

See them today. At your authorized SuperManadager.

ized SuperMac dealer.





485 Potrero Avenue, Sunnyvale, CA 94086 (408) 245-2202

SuperMac, DataFrame, DiskFit, SuperSpool and SuperLaserSpool are trademarks of SuperMac Technology. Macintosh and Mac are registered trademarks of Apple Computer, Inc. Guitars courtesy of Paul Gambon.

STOCKS, BONDS,

he next time the stock market crashes, a high percentage of the winners, or just plain survivors, may be Mac owners. If you invest in any of the capital markets: stocks, bonds, futures, and the like, and you're not using your Mac to help you choose and manage your investments, you're simply not making as much money as you could, and chances are you're spending too much time making the money you are making.

Your Mac is an invaluable portfolio accountant, technical and fundamental analyst, market reporter, and investment counselor, and it is better suited than any personal computer in history to be an investment genius. Its adroitness lies in its high-speed processing, graphics, ease of use, and lineage (specifically the Apple II, which just five years ago boasted more than 200 available investment software packages, more than there are today for the Mac and IBM PC combined).

Because the tools and techniques used for investing are well known and stable, software vendors have had to compete with each other based on price or market position. As a result, the survivors, like Smith Micro Software and Dow Jones, now sport a wealth of experience in understanding the market's needs, producing software, and providing customer support.

JOB DESCRIPTION

Your Mac can fulfill three major investment functions: technical analysis, fundamental analysis, and portfolio management. Technical analysis is the somewhat arcane art of predicting future market performance based on past market performance. You may have heard of magic formulas like Joe Granville's On Balance Volume (OBV), oscillators, or momentum in-

dicators. No matter what the approach, the goal of all these technical studies is the same: to isolate an upward or downward trend in the market, or even more importantly, to forecast the reversal of a trend. Because if you're on the right side of the market when it changes direction, you can make a lot of money. Technicians use formulas in an attempt to quantify the emotion that drives the market.

Fundamental analysts despise technical analysts. Instead of looking at the market as a mass of greed-crazed investors, fundamental analysis looks at the basics of a given company, industry, or economy. If the company has better earnings, a cleaner balance sheet, or better prospects than its competition, a fundamental analyst would recommend buying that company's security because it was a "better investment." On the other hand, a technician wouldn't care. He'd look only at how that security was performing in the market and not care why.

Portfolio management is something that everyone, technician and fundamental analyst alike, needs. Portfoliomanagement systems keep track of what securities you bought and sold, how much money you made or lost, what you need to report for tax purposes, and so on. In the world of Mac investment software, the technical-analysis systems are the eccentrics, fundamental-analysis systems are the average suburban commuter, and portfolio-management systems are the nerdish accountants.

THE WALL STREET TICKER

If you're a serious investor, you need serious market information and that means, at a minimum, daily price quotations. You have two choices: You can enter the prices yourself from the



Wall Street Journal, or you can use an on-line quotation service like Dow Jones, Warner, or CompuServe. The Wall Street Journal is inexpensive, incomplete, and time-consuming. Online services are relatively expensive, but they provide a host of data and are fast

The average investor should plan on spending \$75 to \$100 a month for quotes. All the investment software packages included in this article use one or more of the major quotation



vendors, and they do so with an eye on time, which reduces your charges. If you're considering an investment package that doesn't provide an autodial, auto-log-in, auto-retrieve capability for one of the big three quote services, don't.

THE ECCENTRICS

In 1954, a book that is still in print today, Technical Analysis of Stock Trends (Boston: J. Magee), by Robert D. Edwards and John Magee, ushered in the discipline we now call technical analysis. Originally, technical analysis was nothing more than watching how the market or a set of securities behaved on a chart. Hence, the first nickname applied to technicians was "chartists."

Then, in the 1960s and 1970s, a new breed of technicians began using sophisticated mathematic and statistical analyses that earned them the nickname "gnomes," because their work appeared to be magical, suspended in

space with no visible means of support. The nickname remains in use today.

Technical analysis relies primarily on math and graphics, tasks that are well suited to a Mac. The mathematics used for technical analysis doesn't require any special floating-point hardware or turbo-charged math processors, but displaying the results does require high-resolution graphics.

Three popular packages for technical analysis are Dow Jones Market Analyzer, Pro Plus Software's Wall Street Investor, and Wall Street Watcher, from Micro Trading Software. Dow Jones Market Analyzer has undergone a number of transformations, from its Apple II origins to DOS.

Built specifically to take its quotation feeds from Dow Jones News/Retrieval, the software leverages all the information available on-line from Dow. The four charts Market Analyzer produces are bar, comparison (two securities versus each other), a relative-strength index (which compares a security price to an index), and an oscillator (which subtracts one security or type of study from the other).

The technical studies performed by Market Analyzer are moving averages, where security prices are graphed as averages with the periodicity determined by the user; trend lines; support and resistance lines, which "channel" the up and down price movements of a security or index; and least-square-fit lines, which are the results of a linear regression.

For any of the charts or technical studies, you can resize and move the charts around the screen, view raw price data as well as the chart or analysis, stack multiple chart windows, easily adjust data for stock splits, and store on disk up to a year's worth of information for up to 72 securities.

Market Analyzer makes very good use of the Mac interface, and it's supported by one of the industry's best online telephone support teams. Included in the Market Analyzer is the Dow Jones Straight Talk communications package, which is a general-purpose communications system. Straight Talk is helpful for navigating around Dow Jones News/Retrieval, especially for investment-analysis reports and market news.

Pro Plus Software's Wall Street Investor starts its technical-analysis program by providing classic high, low, and close bar charts for the securities you're following. The technical studies are then overlayed on the bar chart. Wall Street Investor performs moving averages (simple, weighted, and exponential), stochastic studies (which are momentum indicators). relativestrength indexes, advance/decline lines (number of days the security closes up minus the number of days the security closes down), trading bands (channels based on averages), performance to index, moving-average performance to index, momentum rate of change, average daily volume, overbought/oversold index (average number of days the securities price advances versus declines as an index). On-Balance Volume (Granville's theory that a change in volume precedes a change in price), accumulation/distribution (similar to OBV, but a more leading indicator), and the classic point and figure charts, which show the upward and downward movement of a security over time using strings of x's and o's.

Wall Street Investor offers a number of studies that Market Analyzer doesn't. In addition to its added functionality, the documentation for the software is part documentation and part technical tutorial. A companion piece of software for commodities trading is Wall Street Commodities, which has been tuned to meet the needs of technical commodity traders. Both Wall Street Investor programs use Dow Jones News/Retrieval data and offer crisp screens that make excellent use of the Mac interface.

Micro Trading's Wall Street Watcher is a robust technical-analysis tool. Oriented for the die-hard technician, the software adds to Wall Street Investor's list of studies with Wiler's relative-strength index, stochastics, MACD oscillators, William's Percent R, Arm's index, and advance/decline volume lines.

The program uses an ingenious English-like macro command language for automatically producing charts and reports. The system can even be set to "wake up" before you or the market does, and do all your work before you get up.

Up to five technical indicators can be displayed on a chart, and Wall Street Watcher makes excellent use of the mouse for drawing trend lines and channels, and for examining data points. All scaling is user-definable, and the software can retrieve quotes from Dow Jones, CompuServe, and Commodity Systems.

THE SUBURBAN COMMUTER

Fundamental analysis is indeed fundamental. This technique compares the earnings, dividends, and other facts about one company with those of another. Once the information is retrieved from the company's balance sheet or income statement, the company is force-ranked versus its competition. Based on your fundamental bent, the competition could be other companies in the same industry, such as all blue chips, or another criterion such as "only companies with a price/earnings multiple greater than 8 and less than 15."

There are two ways to do fundamental analysis on a Mac today. The most common method is to use a Dow Jones product called Spreadsheet Link and a spreadsheet. The other is to piggyback your fundamental analysis onto your technical analysis with the Wall Street Investor.

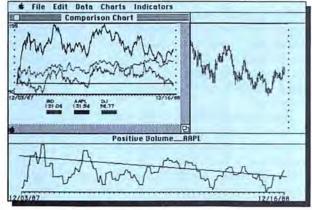
If you're analyzing and sorting numbers, a spreadsheet is probably the easiest way to go. That's why there's only one other fundamental-analysis package on the market. Investment-software vendors quickly discovered that unless they combined their fundamental analysis with other functions, such as a strong technical-analysis system, they couldn't compete with Excel.

Spreadsheet Link lets you define exactly what information you want to import into your spreadsheet, and even the cell you want it in. Once you've constructed your spreadsheet, the software automatically logs on to Dow Jones, retrieves your information, and populates your spreadsheet. It's easy and fast.

Wall Street Investor uses a module known as The Prospector. The Prospector retrieves its fundamental information from the I.P. Sharp database (I.P. Sharp is a major quotation supplier to institutional investors). Once The Prospector is started, you choose from a list of 30 screening criteria. Each criterion can be set to look for values that are less than or greater than a value you choose, such as a dividend greater than \$1.50. Once the criteria have been set, The Prospector screens I.P. Sharp's entire database and returns information only on the companies that fit your criteria. After the screening, you can download information on the company into a spreadsheet as a SYLK file for further analysis.

The difference between using The Prospector and Spreadsheet Link is

This Dow Jones Market Analyzer comparison chart shows Apple compared with two indexes, with a positive volume study for Apple at the hottom.



APDA members just joined another important computer organization.

Every member of APDA has just gained considerably more clout in Cupertino. Because from this moment on, we're not just APDA, close friend of Apple.

We're APDA, a part of Apple.

Which means that we now have the resources to provide an even higher level of service to all

Apple programmers and developers.

If you need the latest development tools, we'll have them. Like the new MPW[™] 3.0, MacApp, APW[™] and the most up-to-date technical notes and manuals. Everything to create software and peripherals for Macintosh and Apple II personal computers.

With Apple on our side, we'll have access to the most accurate, complete information available. (For our entire membership, not just a select few.) And we'll supply a broad range of Apple and third-party development products.

Of course, we'll continue to bring you the traditional APDA benefits, like newsletters, bulletin

updates and special ordering privileges.

And we're committed to growing with your needs, to remain the most complete resource for Apple developers worldwide. For APDA membership information, dial 800-282-APDA.

You'll find that your work can move ahead much more quickly when you're part of a professional computer organization.

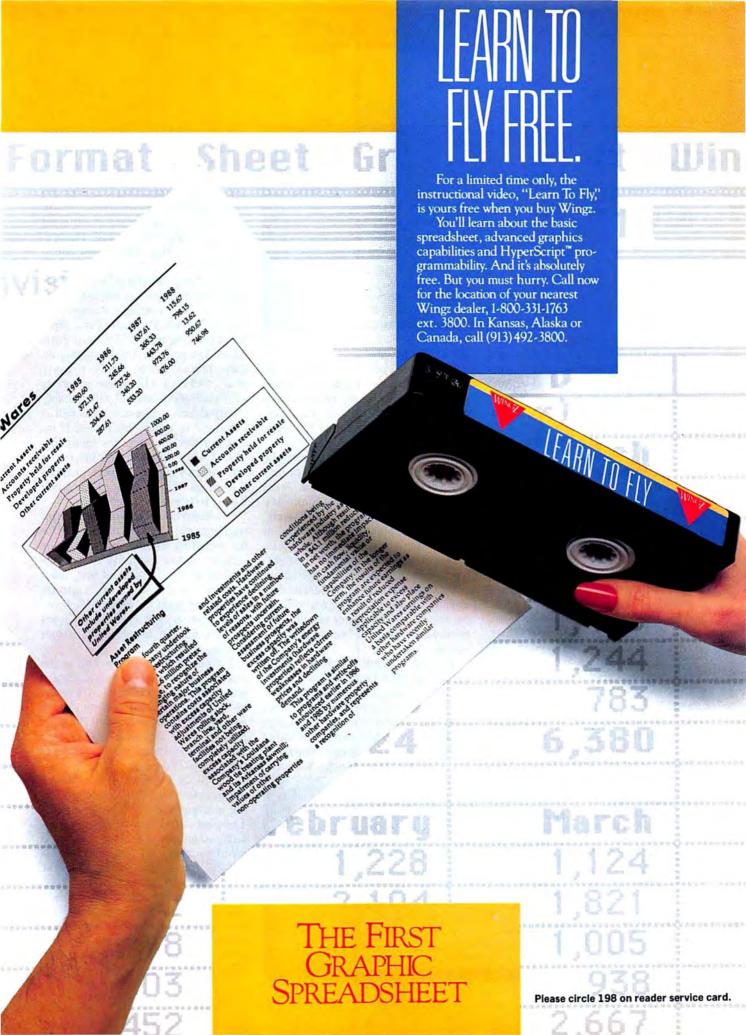
Or two.



The power to be your best."

THIS IS WAY TOO EASY. UNSURPASSED NUMBER-CRUNCHING POWER. CHARTS SO GRAPHIC, THEY JUMP OFF THE SCREEN INTO PAGE PERFECT PRESENTATIONS. YOU'RE ACTUALLY LOOKING FORWARD TO YOUR NEXT MEETING. BECAUSE YOU'RE NOT JUST GOING TO SHOW THEM NUMBERS. YOU'RE GOING TO WIN THEM OVER WITH WINGZ."







This holdings report, from Dow Jones Market Manager Plus, shows the composition of an investor's portfolio, including commissions, current price/value, and gain or loss.

Portfalia 256	Code		Portfolio Sample Ses		Accoun 12345	1 Number	- 16,1	1 a l ance 859 , 23
Date	ID	B	Quantity	Unit	Conn	Total Amount	Curr Price Value	Gain/Loss
DJ.			s & Compon	y 1 1.80	5.	7#1		
Stock		ishi		30 125		14 160 70	31.375	279.78
01/08/88	256 256	8	90	29,50	295 22 51.51	2,706.51		117.24
Total DJ		8	550	30.0227	346.73	16,859.23	17,256.25	397.02
Grand Total	1	8			346.73	16,859.23	17,256.25	397.02

that The Prospector is a menu-driven system that doesn't let you make mistakes. With Spreadsheet Link, your screens will be only as good as your spreadsheet-building skills. Novice spreadsheeters or fundamentalists should use The Prospector. For advanced users, the Spreadsheet Link approach wins because your spreadsheet is populated just the way you want it.

THE NERDISH ACCOUNTANTS

While most people can't agree on the weather, politics, or religion, every fundamentalist and every technician agrees on portfolio management. Without good portfolio management, you don't know what trades you've done, how much money you've made, or how much you have to pay in taxes.

Portfolio-management systems are the accountants of the investment world. Every trade you make flows through your portfolio manager and shows up on transaction reports. All your realized positions are transferred to a tax-reporting module to help you figure out your tax liability. The ruleof-thumb with portfolio-management software is that the more details it tracks, the better.

Since most personal investors can use a portfolio manager even when they don't have any use for an analysis package, the portfolio-management segment of the market is the most crowded.

Three popular stand-alone portfolio managers are Disk-Count Software's Portfolio Manager 1.0, Dow Jones Market Manager Plus, and Smith Micro Software's Stock Portfolio System. Portfolio Manager 1.0 is targeted at the first-time buyer or less active investor. Dow Jones and Smith are fighting for the more sophisticated investor.

Portfolio Manager 1.0 offers its documentation on disk. You can print it out or refer to the on-line version. The documentation, like the program, is simple.

The software provides basic portfolio-management functions, such as recording the purchase or sale of a security, projected dividend income, a tax table that displays investment-related taxable income, and an auto-updating feature using Dow Jones News/Retrieval or Warner Financial Services. Portfolio Manager 1.0 is oriented more toward the plain and simple equity investor. The program can also track bonds, options, mutual funds, and treasury notes, but the odds are that if you're heavily into these types of investments, you'll want a different package. But for \$35 retail, the program is a bargain and the best one to start with.

Dow Jones Market Manager Plus offers the next level of sophistication. Truly a full portfolio-management system, Market Manager Plus is capable of tracking up to 256 distinct portfolios. The program tracks stocks, options, mutual funds, bonds, treasury issues, and cash. The system generates a full suite of reports that will probably satisfy all personal investors, as well as a number of professional ones. It includes a tickler system for reminding you of when dividend and interest is due, and as you would expect, provides a seamless link into other Dow Jones News/Retrieval functions.

Market Manager Plus offers a few simple graphic analyses of your portfolio, including percent of holdings by security, yields, a security cross-reference by annualized gain or loss, and a realized gain/loss. The software makes very good use of the Mac interface and is easy to use. It's a Dow Jones product backed by strong customer service.

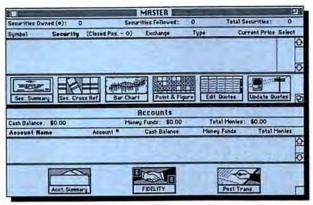
Fighting for top of the line in the stand-alone portfolio-management system market is Smith Micro's venerable Stock Portfolio System, which handles all the securities that Portfolio Manager 1.0 and Market Manager Plus do, as well as money markets and certificates of deposit.

But Stock Portfolio System distinguishes itself from Dow Jones by offering a larger suite of tabular reports. These are current portfolio status, capital account status, profit and loss, dividend income, interest income/expense, transaction audit journal, capital account transaction statement, 30-day advance notice of dividends or interest due and expiring options, tax year profit and loss, and individual-security status. In addition, the software provides excellent margin-handling capabilities.

This Smith Micro
Software Individual
Security Status screen
shows an IBM position
held by the investor.
Notice the option written
against the security
displayed at the bottom
of the screen.

/		X REPORT 2/15/88			
NUTBER OF SHARES : PURCHASE DATE : PURCHASE CLOSE :	200.00 02/20/85 02/25/86	PURCHASE TYPE SELL DATE SELL CLOSE	CASH	CASH STOCK (C)	
PURCHASE PRICE/SHARE :	110.25 121.25	PURCHASE VALUE MARKET VALUE		22050 00 24250 00	
ORIN/LOSS / SHRRE :	11.00	GAIN/LOSS	2 .	2200.00	
PURCHASE CONTISSION :	89.55	SELL COST	2	0.00	
DIVIDENDS :	0.00	SIMPLE ROI		9.544	
POPULATED HOT :	3.40# 2.55#	TOTAL ORIN/LOSS		2111.45 583.59	
		URITTEN			
EXPIRATION DATE : OPTION PRICE/SHARE :		GRIN FROM MAITTING		599.00 2560.45	
	CON	TINUE			

"For convenience, flexibility, and speed, ...the 45MB removable is the clear winner. -MACWORLD, November 1988 Whichever DataPak you choose, you get unlimited storage MASS capacity, take-it-bome portability, lock-it-up, security, quick back-up, instant access to archived data-plus a 45 MB real hard disk inside the cartridge. With an average access time of 25ms and 1:1 interleave, they're actually faster than most conventional bard disks. DataPak—Single 45mb removable media cartridge MASS DataPak duet-Dual 45mb removable media cartridges DataPak bd-45mb removable with 40, 85, or 120mb hard drive MASS For a FREE MACWORLD reprint or the location of your nearest dealer, call 800-522-7979 (9:00-5:00 PST) DutaPsk, DutaPsk duer, DutaPsk hd. DutaCart are insdemarks of MASS microsystems. Inc. All rights reserved on MACWORLD quotes and are used with permission of MACWORLD. Totem, Bernoulli, are trademarks of Iomega Corporation. MegaDrive, MegaPloppies are trademarks of Jasnine. Please circle 183 on reader service card. The Wall Street Investor's main window highlights the software's broad range of functions.



Having reached the Mac via the Apple II and the IBM PC, Smith Micro's package has a long heritage. Its use of the Mac's interface; however, is only adequate, which reflects its past history. Nonetheless, it is still a full-featured, powerful, well-documented system that has excellent reporting capabilities. And when you buy it, you also get two free hours on both Dow Jones and The Source. Unlike the Dow Jones package, you have your choice of on-line services.

Aside from Smith Micro and Market Manager, another option is to use the integrated portfolio-management system that comes with Wall Street

Investor. This portfolio manager is the equal of both of the others. It offers the same features as well as an automatic link to execute buy and sell transactions via Fidelity Investors Express online trading system. Wall Street Investor is the only Mac software system that can do this, and it has the advantage of being integrated with a powerful technical-analysis system and the only fundamental-analysis module on the market.

THE WHITE KNIGHT

The clear winner in the Mac investment software market is Wall Street Investor. The software offers the best or equal functionality at a price that is only marginally higher than its dedicated competitors. The package affords an excellent Mac interface, and a depth of functionality and integration that can be offered only when technical, fundamental, and portfolio-management functions are offered in the same package by the same vendor.

The other systems we've looked at all offer something to different investors. Portfolio Manager 1.0 is a starter kit, Stock Portfolio System and Market Manager Plus are for the advanced trader who doesn't want to do analysis, and the Market Analyzer is for the intermediate technician. Wall Street Watcher is definitely a talisman for serious technicians, but whether its additional studies make it preferable to Wall Street Investor depends on whether you're a Wiler or Williams convert. For our money, Wall Street Investor wins hands down.



scrapbook. It provides you with an easy way to store graphics or clip art. Smart-Scrap allows multiple scrapbooks and offers vertical & horizontal scrolling of a resizable window for large scrapbook pictures.

Guaranteed to perform as advertised or your money back. © 1987 Solutions, Inc., 30 Commerce St. W. 802-658-5506

The new SmartScrap

- · Supports full color on Macintosh II
- · Prints single page or whole scrapbook
- · Includes a bitmap Lasso & Marquee
- · Searches by thumbnail or name of page

INTERNATIONAL

The Clipper is a scaling and cropping tool. It proportionally reduces, enlarges or trims graphics before you paste them into a document. The Clipper can easily resize any graphic that you can put on the Clipboard. The new version adds full color support to The Clipper's window.

ORDER TODAY!

Retails for \$89.95. Runs on Mac Plus' or larger.

Please circle 161 on reader service card.

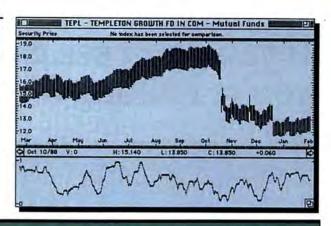
FUTURES

The competition for your investment software dollars will get more intense over the next few years. Major quotation vendors such as Quotron are already offering Mac systems for their professional customers, and sooner or later they are bound to downscale their systems for the personal market.

Other software vendors will continue to come and go in this segment. Unlike spreadsheets, where to be successful you have to best a brand leader like Microsoft, the investment-software market is still wide open. Just as in the stock market, there will be a number of future winners, and just as many - if not more - losers.

KEN LANDIS HAS WRITTEN ABOUT INVEST-MENT SOFTWARE IN MORE THAN TEN NA-TIONAL COMPUTER AND MONEY-MANAGE-MENT MAGAZINES SINCE 1981 AND HAS PUBLISHED MORE THAN 150 ARTICLES ON US-ING A COMPUTER AS AN INVESTMENT TOOL.

This overbought/oversold indicator, from Wall Street Investor Technical Analysis, shows the condition of the Templeton Growth fund. At the bottom of the screen is the fund's trading volume.



Directory

Disk-Count Software

1751 West County Road B, Suite 107 St. Paul. MN 55113 (612) 633-2300

Portfolio Manager 1.0, \$35

Dow Jones and Company

P.O. Box 300 Princeton, NJ 08543-0300 (609) 452-1511

Dow Jones Market Analyzer, \$299 Dow Jones Market Manager Plus, \$299 (Purchase of either program includes five hours of connect time on Dow Jones News/ Retrieval.)

Micro Trading Software 123 Hulda Hill Road

Wilton, CT 06897 (203) 762-7820 Wall Street Watcher, \$395

Pro Plus Software

2150 East Brown Road Mesa, AZ 85203 (602) 461-3296 Wall Street Commodities, \$195 Wall Street Investor, \$695

Smith Micro Software

P.O. Box 7137 Huntington Beach, CA 92615 (714) 964-0412

Stock Portfolio System, \$225 (Includes two free hours of connect time on both Dow Jones News/Retrieval and The Source.)

Don't Get Stuck ...get SuperGLUE MacWEEK, Mar. '88 Print to Disk 'SuperGlue's underlying concept is Save Images - View Images Extract Text - Substitute Fonts so fundamental that you'll wonder why its capabilities aren't an integral part of Copy Selected Areas the Mac system... It operates simply Import / Export Formatted and flawlessly - no other available **Documents Electronically** product can replace it." Macintosh Buyer's Guide, '88

"If you've ever wanted to look at a document or a drawing that was created in an application you didn't have you'll appreciate SuperGlue. Super-Glue has earned a permanent spot on our hard disk... If you do desktop publishing or electronic communications, this program is definitely worth adding to your library."

MACazine, Feb '88

"SuperGlue is ...an important business tool ... substitute fonts, and view, copy and print images without leaving your main application ... an indispensible utility for networking."

Once you use it you'll wonder how you ever got along without it!



Order Today!

from your dealer or directly from Solutions International 30 Commerce Street Williston, VT 05495

802-658-5506

If you don't see exactly what you're looking for, just ask.









Chances are, we'll have it. Because, at Kensington, we're always finding ways to make your Macintosh® quicker and more convenient.

Our award-winning Turbo Mouse trackballs will make your Mac quicker with their automatic acceleration and advanced button features.

Our best-selling System Saver Mac will keep your Mac Plus cool, calm and collected with its quiet cooling fan, surge protection, and extra outlets.

And everything you see here will make your Mac more comfortable. Our Mac II Stand and Cables will get your Mac II off your desk and out of your way. And our Anti-Glare Filters are a sight for sore eyes — in every shape and size.

In fact, we've got so many good ideas, we couldn't fit them all in one ad. But we did manage to fit them in a free 20-page brochure, so call for yours today. Or ask about a dealer near you. 800-535-4242 or 212-475-5200. Or write to Kensington, 251 Park Ave. South, New York, NY 10010.



Setting new standards of performance.

Please circle 145 on reader service card.

Use it to take care of your money, and one day your money will take care of you.

WHEN YOUR

ust about everyone with enough money to have a bank account has heard of Andrew Tobias — or at least seen his writings. He's one of the best, most sensible commentators on the financial scene. On the whole, his advice is good and easily assimilated. Plus he's a nice guy.

Several years ago, he collaborated on the design of the best-selling, original (IBM) version of Andrew Tobias' Managing Your Money. Now, he's collaborated with the same group of programmers and publisher to produce this Macintosh version.

This new version of Managing Your Money is not a simple port of any of the earlier versions. It's entirely new, built from the ground up for the Macintosh, and it shows it. The environment is slick and quite intuitive. And it's very graphical. Not only can you manipulate the program in the graphics-oriented manner in which all true Mac programs work but you can also graph just about anything.

The huge, nearly overwhelming set of features is simultaneously the program's greatest strength and its biggest drawback. For while I can do just about anything in my financial life within the confines of Managing Your Money, I'd do with less if I could do it better and more quickly.

The integration is powerful. Whenever you see a field (usually some number) outlined with a dotted line, you can double-click inside the lines, and you'll immediately be shown how the number in question was calculated. In the tax worksheets, this feature is implemented by small arrows. Either way, it's great. Charting and reporting are based on the same data, so at the bottom of screens you'll frequently find a row of icons that allow you to choose the text report or graph you want to see. And, if a dialog box or

screen has a Command-P in its title, that means you can get a WYSIWYG printout by pressing Command-P.

FUNDAMENTALS

Managing Your Money is friendly with both MultiFinder and the Mac II, although there's no support for color. Still, Mac II users will benefit from the larger screen.

The program requires 1 megabyte of RAM (in spite of a section in the manual that implies it will run on a machine with 512K RAM — the section is a leftover that refers to version 1.0). Managing Your Money also likes a hard disk, but you can run it (barely) from two 800K floppies, as long as your data files don't become excessively large. It's not copy-protected, which is vitally important for any financial package. The very last thing you want is to have your financial data locked up because of a lost key disk or some quirk in a copy-protection scheme.

Managing Your Money is surprisingly fast on 68000-based machines like the Plus and SE, although it will make you wait every now and then. Running it from floppies slows it down appreciably. However, running it on Mac IIs or accelerated SEs is a sheer pleasure. It takes full advantage of all added computational power.

Before you get started, you'll run into one of the errors in the Managing Your Money manual. The manual tells you to enter your name and serial number (which is printed on the disk) into a dialog box. When you click OK, you're supposed to enter the program directly. However, you'll actually be returned to the desktop. Nothing is amiss, other than the manual. Just relaunch the program, and all will work as it should.

Most of the testing for this review was done on an SE with 4 megabytes of



MONEYMATTERS



RAM, a Jasmine DD50 hard-disk drive, and a Radius 25-megahertz Accelerator (with 68881). Performance was outstanding, as expected. Tests were also run on all other supported machines, and performance seemed surprisingly good (to me, not to the programmers, I'm sure).

The manual emphasizes the need for saving your work frequently. There's also a Revert to Save command (in the File menu) that instantly takes you back to the most recently saved version of your files. That avoids having to close the files (and sometimes will be the only way you can close them, if you've run into memory problems).

Managing Your Money reacts gracefully if it runs into a memory problem. Indeed, it won't start if you don't have 20K of free storage space available. If memory problems do occur, you may be able to consolidate your accounts to gain working space. Details that are removed by the consolidations can be saved to an external file, so you don't lose them. The publishers claim the average set of user files takes about 250K of disk space. That seems fairly accurate.

The Managing Your Money manual also strongly suggests backing up your data set to a floppy disk (other than the one you're using, if you're working from a floppy) at the conclusion of each session. That's an excellent idea. In fact, Managing Your Money would be much improved if it offered an option to take you through backup automatically.

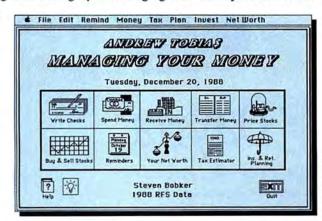
Managing Your Money comes with some sample checks and order blanks so that you can purchase more of them. The checks are not cheap (exact prices depend on quantities and other details) but are necessary if you plan to use Managing Your Money and your printer to create checks. The prices are in line with similar checks for other programs (such as Quicken).

THE DETAILS

When you start Managing Your Money, it displays a HyperCard-like control screen (it's even called the Home Card). Move into the program by clicking on the icon boxes, selecting commands from the menus, or using keyboard equivalents. The light bulb icon toward the bottom left is not documented. When clicked on, it pops up financial aphorisms, apparently a different one for each day.

The first place to go after launching Managing Your Money is the Remind

The Home Card is the HyperCard-like basis of the Managing Your Money environment. Select which basic functions you want to access here. Note the nonstandard Trash icon.



LINDSTROM

Here in the KPMG Peat
Marwick Denver office we use the
Apple Macintosh™ on virtually all of
our audit engagements, regardless of
the type of microcomputer our clients
use. So connectivity is a key issue for
us. And in that regard, DaynaFILE™
is a key product.

Let me give you one example. We just completed an audit of a client who leases all kinds of business equipment. They have a general ledger of over 6,000 accounts which was downloaded from their mainframe into Lotus 1-2-3. The trick was to get those accounts into Excel® on the Mac. We used to do it the old fashioned way—by hand.

This time, we took a Mac SE™ and a DaynaFILE on site and transferred the Lotus files directly into Excel in a matter of minutes, and from there into our Financial Statement program. The whole thing took just 4 hours. To get this far last year it took us 40

hours.

That's a full week's work we saved ourselves. And our client. That's 36 hours we could spend on more productive audit tasks.

We use DaynaFILE in similar

situations all the time."

If you're serious about Macintosh and MS-DOS connectivity like Peat Marwick, connect with DaynaFILE. For information call (801) 531-0203.

Daynafile accepts
51/4" disks from the
IBM PC/XT™ and
AT,™ as well as the 31/2"
disks from the PC
convertibles and the
PS/2™ series.

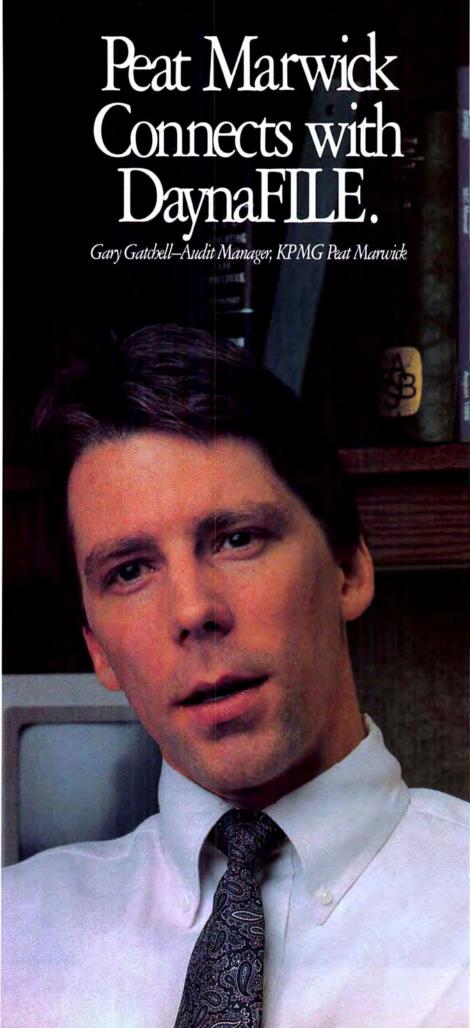




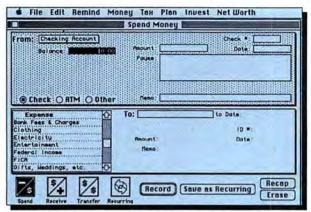
50 South Main, Fifth Floor, Salt Lake City, Utah 84144

Please circle 180 on reader service card.

Dayna and DaynaFILE are trademarks of Dayna Communications, Inc. All other product names mentioned are trademarks or registered trademarks of their respective holders.







This is the screen where you'll do your check writing. Any field that has dotted lines around it, such as the Current Account Balance field that is highlighted here, can be double-clicked, and a screen will appear showing where the field's information came from. The ability to record ATM transactions is new to version 2.0.

menu with its single View, Create, or Edit Reminders command. Selecting that takes you to a Reminders screen. Click on today's date to pull up a list of reminders, appointments, and project notes. Days that have material attached to them are outlined with a heavy rule, but clicking on today's date might show you an advance warning (that you can set) for an upcoming reminder.

Reminders can be set to recur periodically or to show up just once. You can start getting advance warnings as early as you'd like. Many screens in Managing Your Money have a Set Reminder button. This lets you set up a reminder automatically. The program even generates appropriate reminder text (although you can edit it as well). Reminders are very handy for all your recurring transactions.

Appointments are one-time reminders. They appear below reminders in the daily lists. Projects are notes that can be categorized and sorted by priority and person to whom they're assigned. They show up at the bottom of daily lists. All of these lists can be edited and printed.

I had two problems with the Reminders screen. The first is that I had to remember to check it manually every time I entered the program. It would have been nice if upon launch the program looked at the reminders and automatically whisked me to them if any were waiting.

The other problem was far more mechanical. The advance arrows at the top of the month display (the left set is for months; the right set is for years) are far too sensitive and touchy. I found exact adjustment a real chore.

The Control Panel Mouse settings are the culprits here, but only to a degree. I have them set pretty much the way I like them everywhere else. Here they work a bit differently.

Let's continue our features tour by looking at the Net Worth menu. When you first use the program, that's where you actually start. You need a net worth (even a negative one) before you can do anything else. Here's where you set up your accounts. You can use the program's presets or set up your own according to any scheme you want. Groups of accounts can be linked so they show up both individually and as part of a subtotal. The subtotals are called aggregates, and they show up italicized in reports so you won't confuse them with the actual accounts. The Reorder Assets & Liabilities command is where you create your aggregates.

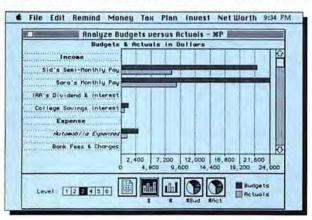
The Money menu is next. This is where most users (other than the heavy-duty investors) will spend most of their time. And most of the time you'll be working with the top command, Spend, Receive or Transfer Money. That's where you do your personal accounting. You write your checks here, log in receipts, and record cash disbursements. This is the menu that improved most in version 2.0. There was some awkwardness using this command (it was actually four separate commands) in version 1.0, but the new dialog boxes are vastly improved and make the whole program much easier to use.

That said, it's important to remember that what we have here is double-entry accounting. Each plus must be offset by a minus (or minuses) of equal value somewhere else. The world is balanced. And while this method of accounting is common (nearly pervasive) in the business world, it's rarely the way people keep their checkbooks. Double-entry accounting takes a while to get used to.

Recurring transactions (like your paycheck) are handled by the basic Spend, Receive, and Transfer command. That's a better way of handling things than the separate Universal Transactions command in version 1.0. This is very nicely implemented, and, in fact, is the best way of handling recurring transactions in any personal finance program.

The View & Edit Transactions is the easiest entry port to Managing Your Money's powerful reporting facilities, but it also allows you to modify previous entries. The ability to modify past work freely is handy when you make or discover an error, but it also makes Managing Your Money unsuitable for small-business accounting. Business accounting transactions should not be editable. Errors should

Here's a graphical analysis of Budgeted versus Actual expenses. You can see the same data in text form or any of four types of charts by clicking on the icons at the bottom of the screen. The levels referred to at the left are equivalent to levels in an outline. Level 1 simply shows a single line summary, while level 6 shows all the details available.





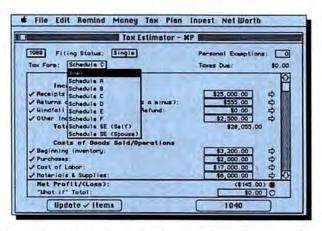
be corrected by offsetting entries, and an audit trail of all changes should be maintained. If you're just keeping a personal set of books, that's not so important, but in spite of what the ads and the manual say, don't consider Managing Your Money for a small business's books. (Quicken has the same failing.)

Reconcile Accounts does a summing of all accounts and lets you know whether your pluses equal your minuses. If not, it's up to you to fix them by either finding the error or creating an adjustment entry. A nice option here would have been something similar to Quicken's ability to accept a small discrepancy and make an automatic adjustment.

The last five items relate to the creation and maintenance of budgets. You can easily make use of Managing Your Money's excellent built-in graphing here. Cash Forecasting is based on your budget and is designed to avoid the situation where you say: "I'm rich, but I'm out of money!" A feature not mentioned in the manual but noted in the Help system is the Shoebox report. This report, one of my favorites, lists all expenditures for any user-specified period organized and subtotaled by tax and budget categories (that's my style of accounting!).

The Tax menu has only one choice,

Taxes are calculated on worksheets, like the one for Schedule C shown here. Managing Your Money makes extensive use of pop-up menus. The one popped up here shows the other tax worksheet reports available.



Tax Estimator, but it's a doozy. The tax estimator is based on your budget and actual expenses. It makes its predictions based on your figures and what it knows about the tax laws. The annual update contains a module on next year's tax rules.

The estimator is organized on three levels and makes extensive use of popup menus. The top level is Form 1040. From that form (via pop-up) you can select forms A, B, C, D, E, F, and SE. That's the second level. The small arrows take you to the third level, the worksheets, which sum to specific lines of the higher-level forms. The Tax Estimator doesn't print tax forms nor does it have templates that allow printing to actual blank forms.

You can also do "what if" planning

by typing in any values you want. Updating the form will show you what effect your values have.

FUTURES PLANNING

The Invest menu is where you keep records of your investments and update and analyze those records. The various commands here will set up automatic reminders of several kinds. You can be reminded of dividend due dates, bond or CD maturities, and option expiration dates. A running tally of gains and losses is also kept. The only nonintuitive part of the whole procedure is the initial setup. You don't do it with any of the Invest commands, but with the Create or Edit Assets & Liabilities command on the Net Worth menu.

This, with the exception of the reminders, is low-level stuff, but it works well and is a handy way to keep your portfolio ordered. Just don't expect to do any analysis much more intensive than simple graphs. For technical stock analysis, you'll need one of the heavy-duty analysis programs like Wall Street Investor, a \$695 integrated analysis program from Pro Plus Software (2830 E. Brown Road, Mesa, AZ 85203; (602) 461-3296). [For more on investment software, see Ken Landis' article elsewhere in this issue. — Ed.]

The portfolio manager will handle splits, mergers, shorts, margins, and most other possibilities. And the chapter of the manual devoted to this menu is packed unusually full of good advice (presented in the manual's normal scattershot fashion).

The Plan menu is a cute bunch of

Viable Means of Support

ECA, the publishers of Managing Your Money, offers two support plans. The first is free telephone support (via an 800 number) to people who have returned their registration cards and who know their serial numbers. Since you are asked to enter your serial number — which is printed on the registration card half that you keep and also on the master disk — when you start Managing Your Money for the first time, it's always available in the About box. So that's no problem. I had no trouble getting through on the support line, and the staff was both knowledgeable and nice.

For an extra \$49.95, you can sign up for the Plus Plan, which brings you four issues of the "Managing Your Money Better" newsletter, one year's damaged disk replacement, and an automatic copy of the yearly update, which is scheduled for the fall of each year.

I signed up for the Plus Plan when I bought Managing Your Money, version 1.0, last year. The introductory issue of "Managing Your Money Better," which was sent to everyone who returned a registration card, was a well-written and nicely printed eight-page newsletter.

A second issue came along with the version 2.0 upgrade last fall (right on schedule). This issue was mostly devoted to the features in version 2.0, how to use them, and how to upgrade your files safely.

I rather like "Managing Your Money Better." While the jury is still out, the Plus Plan looks to be worth \$49.95 per year.

Our removable hard disk isn't the only thing you'll put in your pocket.



\$1099



Like the best removable hard disk drives on the market, ours gives you 42 megabytes capacity on each disk cartridge. So you get unlimited storage, and unprecedented portability and security, just as you'd expect.

It delivers super-fast 25 ms

access speed, for the finest performance money can buy.

It comes with the MacTREE Plus hard disk management system and DS BACKUP software, plus all the cables and terminators you need. Which is more than you get with a lot of the others.

What's the big difference? Simple. Buy ours and you'll save several hundred dollars. Plus you'll get the only two year limited warranty in the high-capacity removable disk drive business. And a full year on our cartridges.

So when you think about it, the real question is not why our removable drive costs so little. But why do theirs cost so much?

Call now to place your order, or for more information.



1-800-325-1895

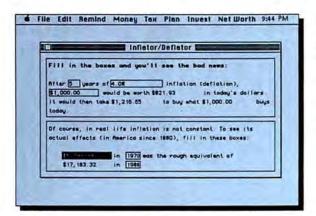
© 1989 Microtech International, Inc. All product names are trademarks or registered trademarks of their respective owners. The two year limited warranty is offered on the subsystem only.

Microtech hard disk cartridges come with a one year warranty. Pricing and specifications are subject to change.

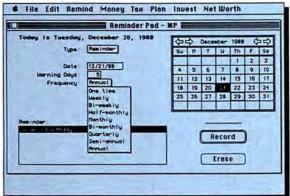
MasterCard and Visa accepted at no extra charge.

Please circle 135 on reader service card.





The inflator/Deflator is a cute, but not particularly useful, function. At the bottom of this screen, I discovered that the salary I started at when I got out of school would be worth just over \$17,000 today.



This is Managing Your Money's Remind screen. It is fully capable of handling all your timeorganization and taskmanagement chores.

utilities that you'll play with when you're first using Managing Your Money and use later mostly to show it off. Under this menu you'll find screens that will estimate your life expectancy (go ahead and "what if" this one a bit — it can be sobering), give you a handle on amounts of insurance and retirement funding you should have, keep a record of your insurance policies, give you an idea how astonishingly expensive life is now and will be in the future, and help with planning mortgage refinancing.

The Inflator & Deflator screen is beyond words. Take a look at the illustration. This has no usefulness at all (unless you're prescient) but is very, very cute.

The last four items let you see present and future values and check payments on loans and annuities. This material is the most useful to be found in this menu. Hence it should probably be at the top, rather than the bottom, of the menu.

THE PAPER TRAIL

Financial programs have to be judged on two different kinds of paper-

work: The first is their documentation, and the second is their printed output. Managing Your Money has problems with both kinds of paperwork.

The manual has all the information you need in it — somewhere. Finding it is not always easy. The writing style is far too cute, and there's far too much gratuitous boldface. You have to do too much searching and interpreting to get some basic information. The organization could be improved by the addition of a glossary and a menu command reference section. Fortunately, there's a decent index. You'll find yourself relying on it a lot to find those items that are covered in a chapter

other than the one you might expect.

There are some minor errors in the manual as well. Some of these are holdover instructions from the version 1.0 manual. They were correct for that version, but the version 2.0 changes are not always reflected in the manual.

The best part of the manual is the advice that it gives between command explanations. It's often excellent, and I wish it were better categorized as well as easier to find. For example, in several places there are some good bits of advice on building up your savings. To find them, though, you have to flip through and pick them out of the typographically busy pages.

The program lacks (and needs) a good, in-depth tutorial. Many of the features could most conveniently be introduced in such a tutorial. The tutorial that is provided is too disjointed and brief.

Hard-copy output is also a problem. Managing Your Money doesn't do a great job printing checks. It has problems with vertical alignment on both the LaserWriter and ImageWriter families of printers. Getting your fields positioned so that they print on the proper lines on your checks is pretty much trial and error, with the errors using up some of your expensive custom-printed checks. And even after you get the first check aligned correctly in an ImageWriter, the next one will be off, then the next one will be on, and so on. The Managing Your Money newsletter suggests that you split the difference so that alternate checks print slightly high and slightly low.

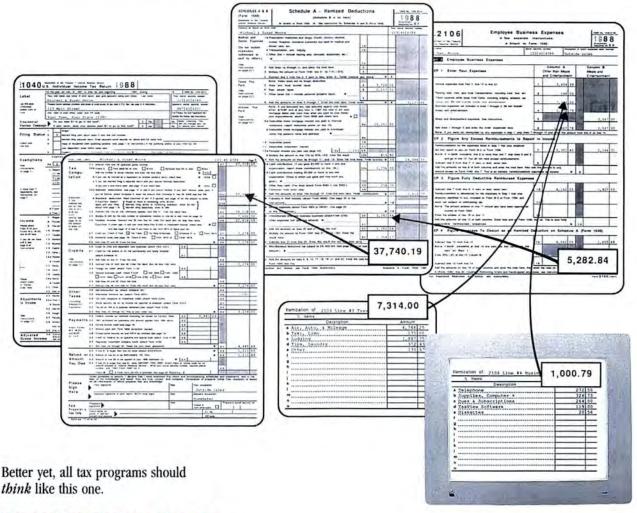
Report printing is better. Version 2.0 allows font choices. And you can print to disk as well to your printer. The inability to print to disk was a ma-

Financial Options

anaging Your Money isn't the only personal finance program out there. It certainly has more features than any of its competitors, but it also has a higher price tag.

If your financial management and planning requirements don't warrant all the features of Managing Your Money, consider the full-featured MacMoney 3.02, which lists for \$119.95 and is published by Survivor Software (11222 La Cienega Blvd., Suite 450, Inglewood, CA 90304; (213) 410-9527); and Quicken, a checkbook register (single-entry) program, which lists for \$49.95, published by Intuit (540 University Ave., Palo Alto, CA 94301; (800) 624-8742 or in California, (800) 468-8481). Both are very highly rated.

All tax programs should look and print like this one.



MacInTax Federal for the Apple Macintosh.®

Simply put, MacInTax whisks you through stacks of receipts and W-2's by allowing you to enter data directly into 72 IRS forms, schedules, worksheets and statements displayed on-screen in identical IRS format. The program totals all entered amounts, automatically makes all tax calculations, and instantly links data to and from individual forms, schedules, worksheets and statements.

It even checks your input and helps you prevent illogical, inconsistent or incomplete entries.

The complete IRS instruction booklet is stored on a line-by-line basis.

What's more MacInTax lets you easily import text files from a variety of outside spreadsheet, database and accounting programs.

When you're ready to sign and send your completed return, the program prints forms and schedules identical to the official IRS versions (complete with your data) onto blank paper using your supported laser *or* dot-matrix printer. Of course, all printed forms are fully IRS-approved.

MacInTax Federal 1988

One look and it's easy to see why, each year, users give this program their highest rating.

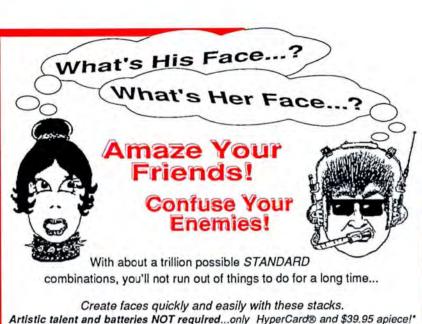
To order your copy publisher-direct, call SoftView at 1-800-622-6829. Or, visit any one of 10,000 retailers offering MacInTax.

MacInTax Federal for the Apple Macintosh.

SoftView,® Inc.

4820 Adohr Lane, Suite F Camarillo, CA 93010 (805) 388-2626

© SoftView, Inc. 1988. SoftView, MacInTax and the SoftView logo are registered trademarks of SoftView. Inc. Apple and Macintosh are registered trademarks of Apple Computer, Inc.



Artistic talent and batteries NOT required...only HyperCard® and \$39.95 apiece!*

only \$39.95 each · plus \$3.00 S&H

☐ What's His Face...?© ☐ What's Her Face...?©

(California residents add 7% sales tax)



Oakland, CA 94602

P.S. Get both and receive three bonus Ware stacks absolutely free!

Please circle 21 on reader service card.

Get a handle on Desktop Video Production.

The Designer's Portfolio PhotoMac Captures, Retouches, Prints Color Photos Look Inside!

Call now for your FREE edition of The Designer's Portfolio.

Portfolio is a "How To" guide for animators, computer graphics users, film/video producers, designers, and others using the Macintosh II or IBM

Portfolio reviews the latest in color frame grabbers, like OuickCapture™ and ColorCapture,™ which let you capture, manipulate, and display color video at 30 frames per second.

Portfolio also provides the latest in compatible photo retouching and design software. Featured packages include PhotoMac,® Digital Darkroom," ImageStudio," GraphistPaint" II and LaserPaint® Color II.

FREE subscription. Call 1-800-221-6071. DATA TRANSLATION®

Data Translation is a registered trademark and QuickCapture and ColorCapture are trademarks of Data Translation, Inc. All other trademarks and registered trademarks are the property of their respective holders.



jor drawback of version 1.0. You can instantly tell if a report is printable and most of them are - by checking at the title bar for a Command-P.

Reports saved to disk can be saved as either text files or tab-delimited files. That will let you, with some care, export information to spreadsheets and other programs. This feature needs to be documented.

THE BOTTOM LINE

Managing Your Money nearly overwhelmed me with its wealth of features. This year's version, 2.0, is more than an update of the tax database. It's also a huge improvement over version 1.0, being much cleaner and easier to use. If only the manual had improved as much as the actual software did.

This powerful package should be ideal for you if you're comfortable with double-entry accounting and if your financial life is fairly complex. If that describes you, then Managing Your Money will do the job, while also providing a plethora of tax and financial planning features.

STEVEN BOBKER IS THE FORMER EDITOR-IN-CHIEF OF MACUSER. IT WAS IN THAT JOB THAT HE BECAME CONVINCED OF THE VAL-UE OF FINANCIAL PLANNING.

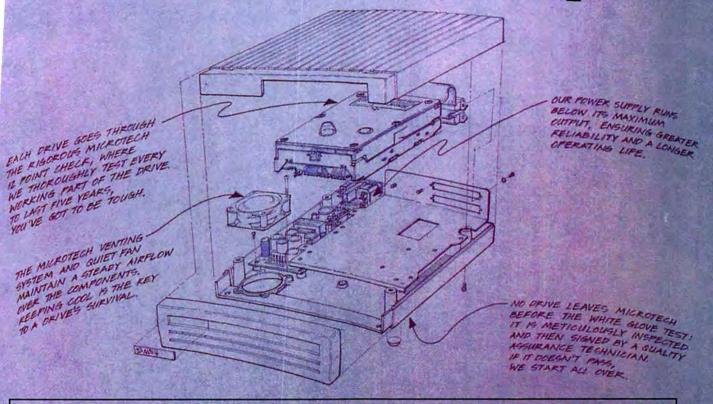
MACUSER RATING

Managing Your Money

Follows Mac Interface **Printed Documentation** On-Screen Help Performance Support Consumer Value

Comments: Feature-laden personal accounting system with added financial- and time-management functionality. Uses double-entry accounting. Best Features: Integration of functions lets you do all your financial recording and planning inside this package; excellent on-screen help. Worst Features: Too-cute documentation; alignment problems when printing checks. List Price: \$219.95. Version 2.0 reviewed. Published by MECA Ventures, 355 Riverside Ave., Westport, CT 06880; (203) 226-2400. Requires 1 megabyte or more RAM, 128K or later ROMs. Mac II and MultiFinder friendly. Not copy-protected.

We challenge the competition to match our five year warranty. We'll even give them the plans!



INTERNAL

569.00

\$ 919.00

\$ 999.00

\$ 649.00

\$1019.00

\$1099.00

\$1469.00

N/A

Other manufacturers offer you a one, maybe two year warranty on their hard disk drives. Which probably tells you something about the way they make them.

Only Microtech gives you a five year limited warranty. And that says a lot about the way we make ours.

16 \$1399.00 320 18 *Quantum's DisCache allows access times to drop as low as 12 ms
*Available for the Macintosh II and IIx only.

ACCESS TIME

19

10

40

80

100

In fact, when you buy a Microtech internal or external hard disk drive for your Macintosh, you're getting the product of superior design. Top of the line components. Excruciating quality control. And the most dedicated service and support staff in the business.

Size for size, you're also getting the fastest drives available. Each one bundled with MacTREE Plus, the hard disk management system, and DS BACKUP. And all for the most competitive pricing around.

So for quality, economy, and five full years of unmatched performance, insist on a Microtech hard disk drive.

For the rest of you guys, it's back to the drawing board.

Call now to place your order or for more information.



29 Business Park Drive, Branford, CT 06405

(203-488-7744 in CT)

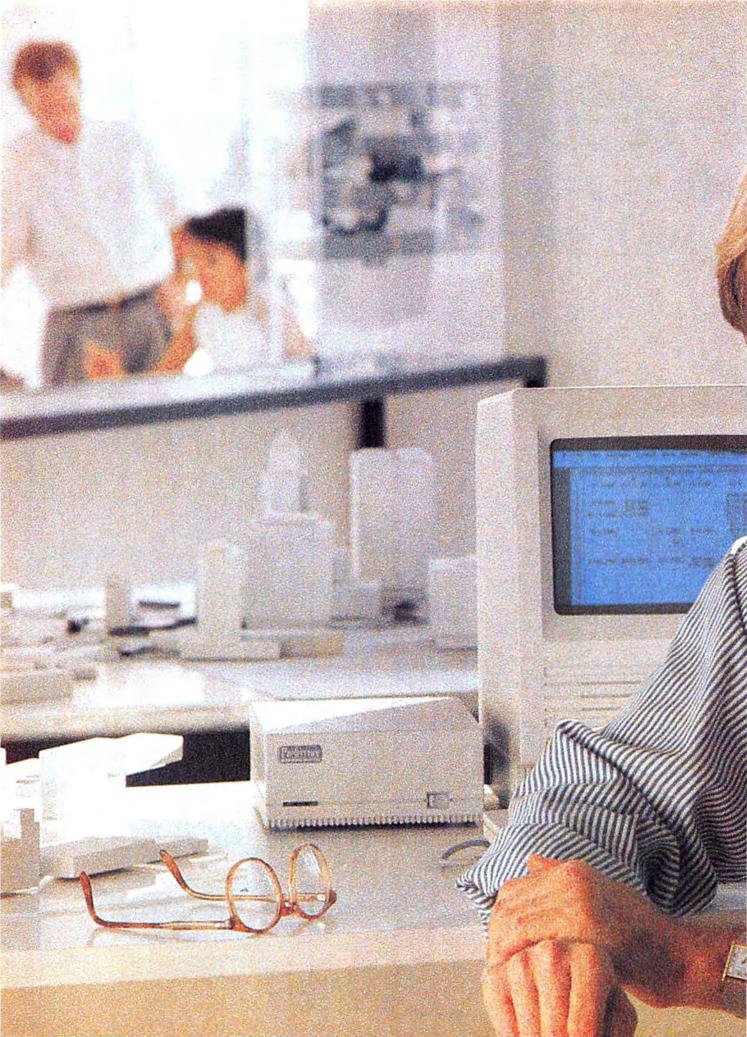
© 1989 Microtech International, Inc. All product names are trademarks or registered trademarks of their respective owners.

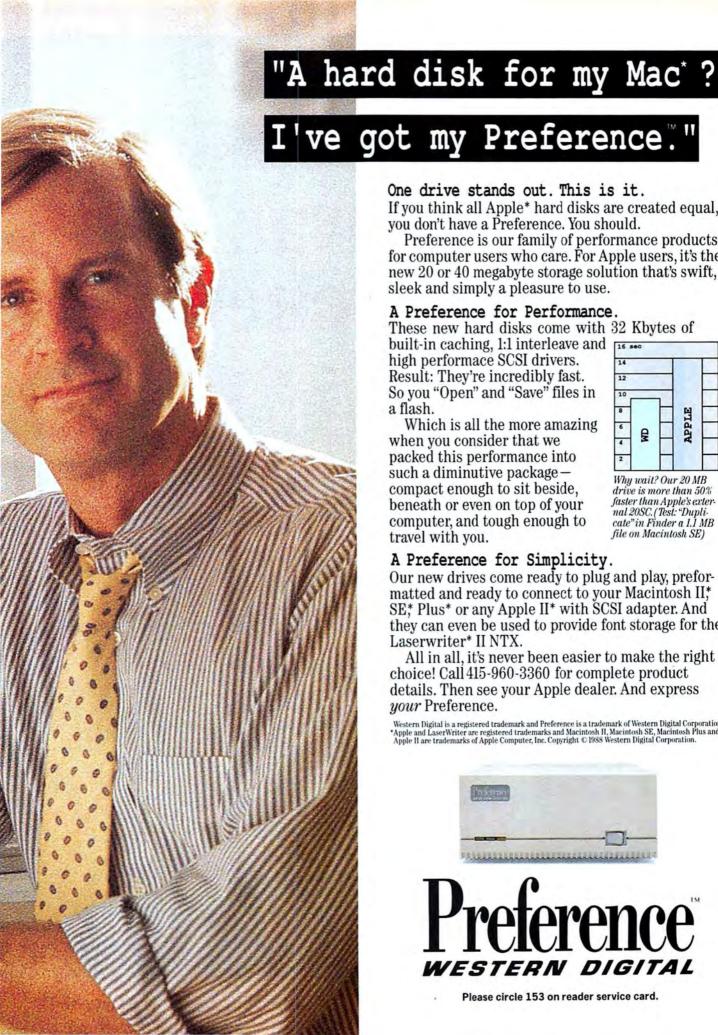
The 5 year limited warranty is offered at no extra cost on hard disk drives sold and delivered in the U.S. or Canada. Certain restrictions and exclusions apply.

Terms and conditions of the 5 year warranty are available upon request. Prices and specifications subject to change without notice.

MasterCard and Visa accepted at no extra charge.

Please circle 134 on reader service card.





One drive stands out. This is it.

If you think all Apple* hard disks are created equal,

you don't have a Preference. You should.

Preference is our family of performance products for computer users who care. For Apple users, it's the new 20 or 40 megabyte storage solution that's swift, sleek and simply a pleasure to use.

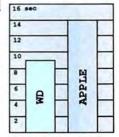
A Preference for Performance.

These new hard disks come with 32 Kbytes of

built-in caching, 1:1 interleave and [16 sec high performace SCSI drivers. Result: They're incredibly fast. So you "Open" and "Save" files in

a flash.

Which is all the more amazing when you consider that we packed this performance into such a diminutive package compact enough to sit beside, beneath or even on top of your computer, and tough enough to travel with you.



Why wait? Our 20 MB drive is more than 50% faster than Apple's external 20SC. (Test: "Dupli-cate" in Finder a 1.1 MB file on Macintosh SE)

A Preference for Simplicity.

Our new drives come ready to plug and play, preformatted and ready to connect to your Macintosh II* SE,* Plus* or any Apple II* with SCSI adapter. And they can even be used to provide font storage for the Laserwriter* II NTX.

All in all, it's never been easier to make the right choice! Call 415-960-3360 for complete product details. Then see your Apple dealer. And express your Preference.

Western Digital is a registered trademark and Preference is a trademark of Western Digital Corporation.

*Apple and LaserWriter are registered trademarks and Macintosh II, Macintosh SE, Macintosh Plus and
Apple II are trademarks of Apple Computer, Inc. Copyright € 1988 Western Digital Corporation.





Please circle 153 on reader service card.

Canvas Stretches

n the best of all possible worlds, we'd no doubt have a single application that encompassed everything from accounting to Zork. In a slightly less than perfect world, we'd at least have a program that allowed us to paint and draw with equal facility. It will come as no news that neither of these is the kind of world we live in. Still, until the day comes along when we'll be able to import, edit, draw, paint, and manipulate graphics from within a single package, we have Canvas 2.0, a powerful, full-color objectoriented drawing program with significant painting power. The new Canvas is a mega-upgrade from Canvas 1.0, with a collection of features that should prove attractive to a broad range of users in fields from the graphic arts to computer-aided design (CAD). And the switch from drawing commands to painting commands and back — the prickliest part of version 1.0 - has been elegantly smoothed out in the new edition.

In fact, the multifaceted nature of

Canvas 2.0 makes it difficult to assess. The \$299 price tag alone puts its competition at a distinct disadvantage. But since Deneba Software, the program's developer, is clearly aiming for the same market as MacDraw II, we decided to take that as a basis of comparison. Here's what Canvas looks like when stretched out.

THE WORK SPACE

Full color work in Canvas 2.0 will call for a Mac II, but a monochrome Mac will do for most other projects. However you work, though, size shouldn't be a problem; your work area can be up to 9.3-x-9.3 feet. And your preference options include precise manipulation of dimensions (fractions or decimal, from one to four decimal places), and the coordinate system (where 0 degrees is straight up and angles increase clockwise, or where 0 degrees is on the horizontal axis and angles increase counterclockwise). Wisely, Canvas lets you specify the amount of vertical and horizontal page

BY PHILLIP ROBINSON

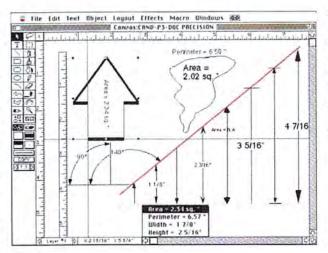


overlap when printing multipage drawings, so you can cleanly match the segments of your picture. That's more flexibility than in MacDraw II.

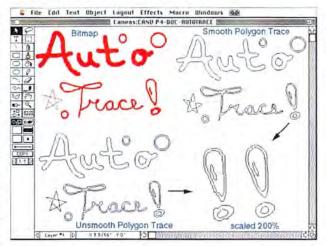
You may draw on any number of layers in a document. The layers are like transparent glass trays, offering a way to manage large numbers of objects easily: All objects drawn in a given layer can be edited and restacked with respect to each other, without affecting objects in other layers. A Layer Manager lets you create, name, restack, and delete layers, as well as designate each layer as visible, grayed, or temporarily overridden by some color. Layers can be activated through the Layout menu or through the Layer Monitor status indicator at the bottom of the window, and can be printed or saved independently. Selected objects in an active layer can be sent to any other layer. MacDraw II also works with layers, but doesn't offer the option of graying or using color to override a layer. It does, however, let you edit the objects of multiple layers simultaneously, which Canvas 2.0 does not permit.

A squad of "managers" allows you to customize and control rulers, alignment, objects, text, and arrows. The Ruler Manager, for example, has settings for six different rulers, with adjustable units (inches, picas, points, or centimeters), number of minor divisions (from 0 to 32), scale (such as 1 inch equals 1 foot), and even adjustable symbols (",', in., ft., cm., and so on). The rulers are on the top and left edges of the drawing, and you can drag their zero points wherever you like. Dragging on the appropriate ruler creates a horizontal or vertical guideline that you can position anywhere in your layout. Similarly, Option-dragging "peels away" a floating copy of a ruler. Both guidelines and rulers are nonprinting objects, and you can drag away as many copies as you need. The guidelines can act as magnetic alignment tools (such as grid steps); you can hide or show them all with one command. Not a bad idea. MacDraw II's rulers are also adjustable, but don't include guides or peel-away rulers.

In addition to the rulers, there are Grid and Snap to Grid commands.



For technical illustration and other projects requiring measurement and precision, Canvas 2.0 offers nonprinting guidelines, peel-away rulers, auto-dimensioning lines and arcs — and does some tricky math for you.



Canvas 2.0's automatic tracing facility does a fast and respectable job of drawing an object to follow the contours of a bit map. Shown here is the difference between two tracing options.

Unlike MacDraw II's grid size, which comes directly from the ruler divisions, Canvas has a Grid Manager that lets you set grid divisions from 1 to 1/15 inch in a dozen steps, and choose independent x- and y-axis snapping. This gives you a lot more control than MacDraw II does. Canvas 2.0 also provides some key tools from the CAD world - autodimension lines, perimeter and area calculation and display. (Once displayed, however, the calculations become pure text, and won't change as you change the object's dimensions.) The auto-dimensions and other precision features don't make this a substitute for a dedicated drafting tool, but they come close enough for less complex jobs.

LOOK AT IT THIS WAY

Canvas 2.0 lets you assign a name to

a view of any chosen area of a document and then put that name into a menu so that you can quickly return to the particular view at any time. Mac-Draw II shares this feature. Canvas offers two methods for zooming in and out of an image from 3.25 percent to 3,200 percent — a magnifying glass that zooms in gradual steps, and a popout chooser that instantly reaches any of the 32 magnification or reduction levels. MacDraw II zooms to the same extremes but with only ten levels in between. Canvas gives you the option of viewing and editing an image in QuickDraw or PostScript modes that let you see an on-screen approximation of what you'll be getting from your output device. QuickDraw mode shows what an ImageWriter or non-PostScript laser printer would print, and PostScript mode shows what you

Introducing A Better Display For The Macintosh II ...

For About \$300.00 Less Than You'd Expect.



This is not just another display clone. It's the new Magnavox Analog Color (MAC) display, specifically designed and engineered to compliment the Macintosh II system.

When we decided to develop a display exclusively for the Macintosh II, we started with two objectives: Make it work better, and make it cost less.

Our 14" MAC display appeals to even the most discriminating user. It's equipped with our new proprietary 0.29mm dot pitch CRT for superb resolution, and a glossy CRT face for crystal clear images. Graphics and text on the MAC display shine at their best. The integrated tilt-base provides the ultimate in user comfort.

Additionally we offer a solid, two-year warranty instead of the usual 90 days. And the \$699 retail makes this a great value.

Designing a superior display for the Macintosh II system was smart. Offering it for \$300 less, that's very smart.



can expect from a LaserWriter, Linotronic, or other PostScript device. One last mode, Wireframe, displays all objects without fills or colors, bordered with 1-point lines at any magnification, much like in Illustrator 88's normal editing mode. A Wireframe view redraws at about twice the speed of the other modes. MacDraw II displays only in QuickDraw mode.

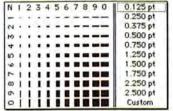
Canvas is also ahead of the game in the variety of file formats it can handle. It can read and write MacPaint files, PICT, PICT2, or tag image file format (TIFF) files, with a "read only" option. It can directly read files from the old MacDraw. MacDraw II opens only its own file format and PICT, and while it can import, rotate, and scale bit maps, it can't edit them since it lacks anything comparable to Canvas 2.0's painting abilities.

DRAWING ON YOUR RESOURCES

Canvas 2.0 gives you the standard tool icons for drawing the mandatory basic lines and shapes, plus a new tool for continuous multipoint Bezier curves — the mainstay of Illustrator and FreeHand. The version of Canvas 2.0 we had for review didn't vet offer Beziers with all the sophistication provided by Illustrator and FreeHand, but a free upgrade, available by the time you read this, will handle Beziers much like the Big Two do it. Tool icons with hidden options or subtleties are identifiable by their thick edges, and Option-clicking on them will pop out related menus. The Bezier, freehand, and polygon tools, for instance, each have a pop-out menu for adding, deleting, or selecting control points.

For one or more objects, you can select a background color and foreground color (each from a palette of 256), a pen shape (a rectangle of variable height and width), and a fill pattern from one of three palettes or from a graduated bar of increasing gray density. Selecting a pen pattern offers the same options as fills. You can also select from five different line-end styles — plain, arrow at start, arrow at end, arrow on both ends, and a fifth choice that makes auto-dimensioned lines or arcs that have their length or degree-span permanently attached

Pen Size Palette

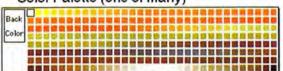


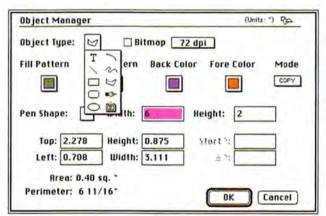
These are the working pop-out palettes that you use frequently. Each can be customized through setting preferences or by downright altering some or all of their contents.

Pattern/Grayscale Palette (one of 3)



Color Palette (one of many)





From this control center you can alter just about every attribute of a Canvas object, including converting objects to bit maps, polygons to Beziers, and changing the resolution of bit maps.

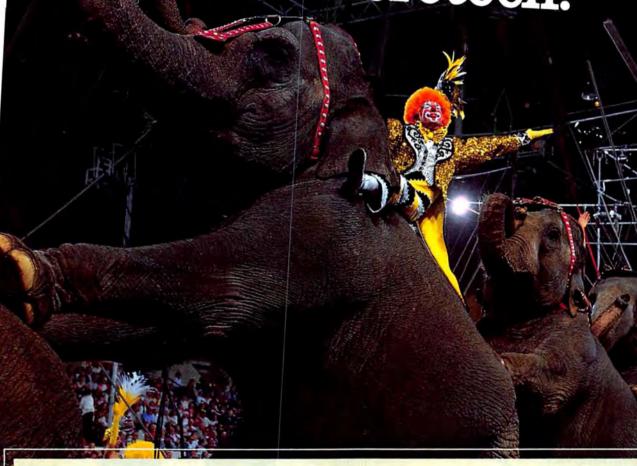
and displayed at the middle of their span. The values change as the line or arc is changed.

Canvas 2.0 can show you a great deal about any object you select, and, more importantly, it lets you change its attributes and (within limits) even its basic nature. Furthermore, if you select a group of objects, you'll see just the group's combined dimensions and the number of objects in the group. You'll also have the option of converting the group to a bit map. The Bitmap option lets you convert a drawn object into a bit map of a specific bit density between 72 and 2,540 dots per inch (dpi). When you select a single object, you can see and change the object's type (text, oval, rectangle, polygon, and so forth), its bit-map density, fill pattern, background color, foreground color, pen shape, width, pattern, numerical size and position, and its ink mode. This last option covers the eight kinds of effects that can be produced when two graphics overlap. None of this is available in MacDraw II.

COLOR CONTRAST

Canvas 2.0 recognizes the specific Mac and the color mode you're using and gives you an appropriate color selection—up to 256 colors on a Mac II. On a Mac Plus or SE, or Mac II in two-color mode, your choice is limited to the eight QuickDraw colors—red, green, blue, cyan, yellow, magenta, black, and white. Canvas can import and correctly display color or gray-scale items such as scanned images, colored bit maps, and objects. When printing color documents on a Laser-Writer, Canvas throws a curve: Instead of printing the gray equivalent of

If finding a lot of memory is turning into a circus, call Microtech.



Some companies just take your order for SIMMs, then pack up their tents and move on. Another city, another show.

Next time call Microtech. We're the Macintosh memory experts. In fact, we're the nation's biggest independent supplier of Macintosh memory, serving all kinds of companies, from Westinghouse and WordPerfect, to General Electric and the U.S. Department of Energy. And for some very good reasons.

We maintain a mammoth inventory of 2-8* MB SIMMs for the Macintosh Plus, SE, II, IIx and LaserWriter II, ready to ship today. Each one is tested, and re-tested before it goes out the door. So they never come back.

Add to that our unbeatable pricing, prompt service and after sales support, and you've got the best memory company in the world.

So, the next time you need memory, the choice is clear. Call Microtech.



29 Business Park Drive, Branford, CT 06405

00-325-1895

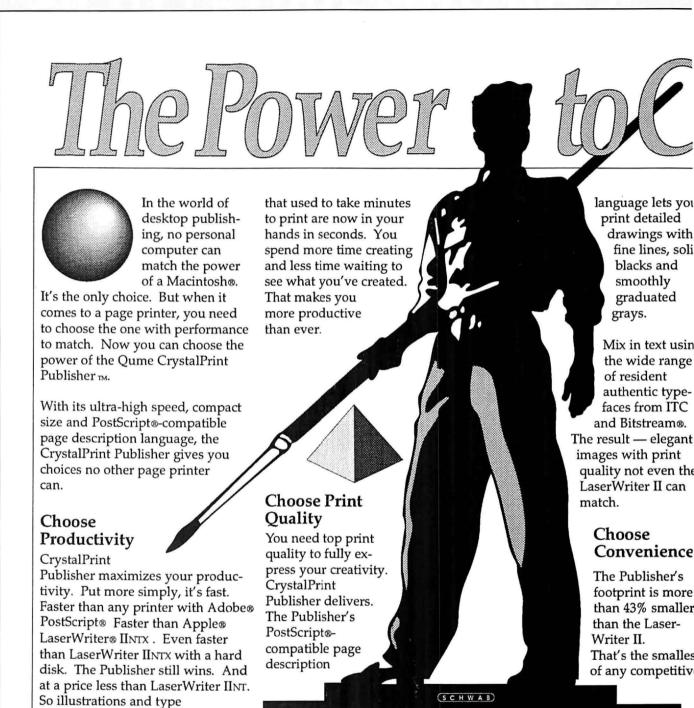
(203-488-7744 in CT)

* 8 MB SIMM kits for the Macintosh II, IIx and LaserWriter II. Prices and availability subject to change without notice.

© 1989 Microtech International, Inc. All product names are trademarks or registered trademarks of their respective owners.

MasterCard and Visa accepted at no extra charge.

Please circle 51 on reader service card.



[©]Qume Corporation, 1988. Qume and the Qume logo are registered trademarks of Qume Corp. CrystalPrint Publisher is a trademark of Qume Corp. Apple, Macintosh and Laser-Writer are registered trademarks of Apple Computer, Inc. PageMaker is a registered trademark of Aldus Corp. Adobe and Adobe Illustrator 88 are trademarks of Adobe Systems, Inc. PostScript is a registered trademark of Adobe Systems, Inc. Bitstream is a trademark of Bitstream, Inc. ITC is a trademark of International Typeface Corp.

hoose

page printer. Which means the Publisher stays close and convenient — where you need it— even in the most space conscious environments.



Compare, Then Choose

Let your Qume dealer show you the power of the CrystalPrint

Publisher. Ask them to print this page on the Publisher and then on an Apple LaserWriter II. After that, the choice is yours. Choose the winner and you'll choose Crystal-Print Publisher. With its speed, print quality and convenience, no other page printer can match the power of your Macintosh. Crystal-Print Publisher is the power to choose. For information or a demonstration, contact your nearest Qume dealer or distributor. Or contact Qume at (800) 223-2479.



The Company with Peripheral Vision.

Artwork composed using Aldus PageMaker™ and Adobe Illustrator 88™

Please circle 178 for information

CrystalPrint Publisher Market Street Stree

Graphic Proof of Quality and Speed

You know graphic quality when you see it. That's why we used an original printout taken directly from the CrystalPrint Publisher to produce the artwork for the adjacent page. So you can see the fine lines, the well-formed characters and uniform blacks for yourself.

You also know the importance of speed. The LaserWriter IINT takes 172 seconds longer to print the same page. Even the expensive, top-of-the-line Laser-Writer IINTX takes longer.



Now, the choice is yours. Choose CrystalPrint Publisher and choose print quality and speed. Then spend more time



Qume Corporation, 500 Yosemite Drive, Milpitas, CA 95035 (800) 223-2479

Please circle 179 for dealer inquiries

a color (like a black-and-white photo) Canvas prints light colors and light grays as pure white, and dark colors and dark grays as pure black. But it offers an alternative. On your request, Canvas can create a halftone (dithered bit map) rendition of a colored object by changing its color to an appropriate shade of gray. You can customize the appearance of the resultant bit map by choosing from 15 halftone matrices or dither patterns. On a color printer, such as the Tektronix 4693D, Canvas prints all colors faithfully with no conversions necessary. MacDraw II displays only the basic eight QuickDraw colors, and it prints all color as highcontrast black and white on the Laser-Writer. Even on a 4693D, MacDraw II prints only in the basic eight Quick-Draw colors. MacDraw II, however, analyzes a file as you try to print it and, if the file contains color, offers the option of printing color separations with registration marks. Canvas 2.0 doesn't have a separation facility.

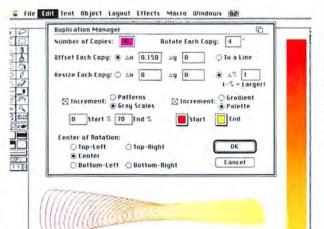
WHEN IT'S TIME FOR A CHANGE

You can edit an object by selecting it and using the menus or Commandkey equivalents, or, if you want to begin reshaping it, you can simply double-click on it. As a power touch, you can open or cut off parts of polygons or Bezier curves by snipping them at their vertices or anchor points. You can also combine two open polygons or Beziers into one object by joining their loose ends with a "gluing" tool. Special effects for objects, bit maps, or groups of objects include flipping, 1-point and 2point perspective (to give an illusion of depth), skewing and distorting, and rotating in 1-degree increments or by dragging. Transformed objects can be returned to their original shape and orientation with a single command. MacDraw II lacks the object-cutting and gluing facilities and can't skew, distort, apply perspective, or automatically return transformed objects to their original shapes.

Canvas 2.0 lets you operate on text with the same variety of options and facility that you have with objects. You can mix any font, size, style, and color in a single text block, as well as rotate, skew, and distort text. Rotated



Canvas 2.0 is no slouch when you feel creative. Here, just about every object was drawn with the Bezier tool and modified with the rotate, skew, distort, and perspective tools. The background is a series of auto-duplicated colorstepped rectangles. A spray of yellow pixels finishes the piece.



Here you specify how many times to duplicate a selected item and what to do to each successive copy. The procession of spun ovals and the color transition were both produced this way. The dialog box reflects the settings that produced the ovals.

text prints perfectly smooth. Skewed or distorted text, however, looks and prints like a jagged bit map, even on a LaserWriter. Unfortunately, special-effect text can't be edited as text unless you restore it to its original form. MacDraw II lets you edit rotated text directly and additionally supports full (newspaper-style) text justification.

MANAGEMENT TRAINING

Canvas, like American business, is full of managers. These managers are available through the tool palette and from the Edit menu. A Custom Pen Manager sets the height and width of the pen in 100 preset combinations of whole points, plus ten savable customizable sizes and one nonsavable custom size. The pen size ranges from 127 to 1/256 points. An Arrowhead Manager

lets you choose or modify any of the seven basic types of arrows. MacDraw II has comparable arrow and linewidth control, and also has an editor for creating your own styles of dashed lines.

The Canvas Pattern Manager lets you activate one of three available fill pattern palettes. You can edit any existing pattern or create new patterns, saving them in the empty third palette. The Color Manager handles the colors and color palettes — creating, modifying, saving to disk, loading from disk, picking new colors from the 16.7-million-color wheel, blending and contrasting, lightening, darkening, and almost infinitely fine-tuning. The color editor lets you see your color in CMY (cyan, magenta, yellow), RGB (red, green, blue), HSL (hue, saturation, lu-

Tektronix showmanship for the Mac II user.

Now you can create prints and overhead transparencies that rival 35mm slides in brilliance, color, and sharpness. Easily, with a chooser-selectable, Quick-Draw™-based driver. And quickly, at the rate of one page per minute. All with the Tektronix 4693DX Color Image Printer for the Mac II.

For publishing or presenting,

AMUSEMENT PARK ATTENDANCE

950,000

in business, engineering, science, or even graphic arts—the 300 dot-per-inch, 16.7 million-color 4693DX delivers the performance you need. And it's compatible with an impressive range of applications, such as Microsoft® PowerPoint,™ Cricket Presents, Aldus Page-Maker® and Freehand,® Super-Mac® PixelPaint, and others.

For more on what Tek 4693DX showmanship can do for you, or the location of a Tektronix dealer near you, call 1-800-225-5434. In Oregon, call 1-235-7202.



Copyright © 1989 Textronix, Inc. All rights reserved. ART-112-1 The following are registered trademarks: Freehand and PageMaker of Aldus Corp., Microsoft of Microsoft Corp., and SuperMac of SuperMac Corp. The following are trademarks: Mac and QuickDraw of Apple Corp. and PowerPoint of Microsoft Corp. Screen image courtesy of Visual Information, Inc.

Please circle 171 on reader service card.



minance), HSV (hue, saturation, value), or YIQ (not an acronym) values. To assist, a bundle of sample color palettes comes with the program.

Color artists will want to know that Canvas behaves differently from other programs in handling color. In some programs, if you alter the color palette after you've assigned colors to your objects, the color of the existing art also changes. In Canvas 2.0, once you've assigned a color, it sticks. Thus, you can change palettes and edit colors all you want, without side effects. This in-

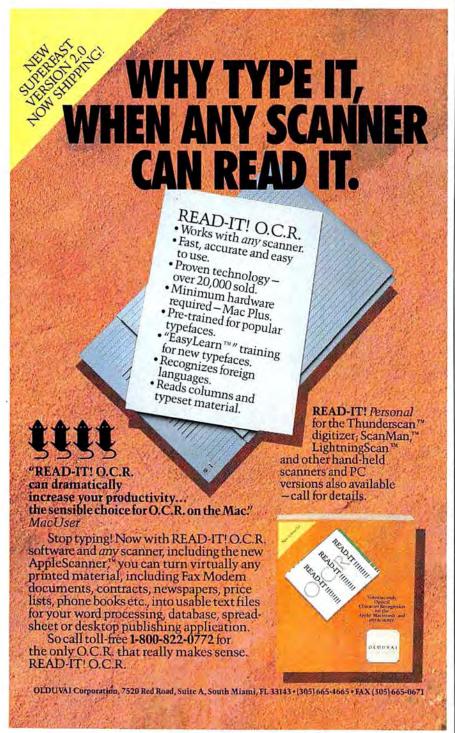
dependence from the color palette means that you can actually use more than 256 colors in your documents. MacDraw II offers colors only in the pattern editor, and only gives you the eight QuickDraw colors.

Other managers give you different options. The Alignment Manager gives you the option of aligning objects by centers, individual sides, logical combinations of sides, or to a line that you draw. MacDraw II scores points on Canvas here. It offers more alignment options, a graphic image to demonstrate what your alignment choices will mean in action, and the ability to "distribute" select objects along an axis. Canvas, however, fights right back with a Scaling Manager that can resize an object by ratio or percentage. You can resize proportionally or disproportionately, and optionally scale the object's line width - valuable if you do a lot of scaling. MacDraw II has no numerical scaling ability.

You can handle simple duplication of an object in Canvas 2.0 by pressing Command-D, by menu, or by Optiondragging an object. Heavier-duty duplication is directed by a (guess what?) Duplication Manager. This lets you set the number of copies, as well as the vertical and horizontal offset, resizing factor, and rotation, for each successive copy. You can also choose beginning and ending patterns, PostScript gray-scale levels (from 0 to 100 percent), and palette colors for the duplication process. This feature lets you create color or gray-scale gradients, and you can choose to distribute the duplicates along a line that you draw. MacDraw II has no comparable effect.

PAINT JOB

The painting tools within Canvas 2.0 reside in the same palette as the drawing tools. You can use dedicated icons for switching between drawing mode and painting mode, but you can also change modes by choosing a mode-specific tool and using it anywhere you please. If you use the brush (a paint-only tool) in a region that has no existing paint area, Canvas will create one automatically and will adjust the size of the area to the size of your entire first stroke. Also, when you cre-



FOCAL POINT II

ROCALIPOINTI

"I got caught—underdressed for success. Missed a meeting with the boss, lost a million-dollar contract, forgot our anniversary. Don't get caught—without Focal Point II."

Don't go to work without it!

Focal Point II will manage your time, tasks and contacts. So you can keep your eye on the big picture.

Save Time By Managing Your Time.

With the linked daily and monthly calendars and To-Do list, you'll never miss a meeting or forget a "must-do." You won't just track your priorities, you'll get them done—and if you don't, Focal Point II will carry them over to tomorrow's list, automatically.

Plan, Execute, And Track Projects

with ease and efficiency. Milestones, budgets, clients, and vendors are at your fingertips, ensuring on-time, under-budget, and successful projects.

Strengthen Your Network With

Prompt Communications. Instant form letters, auto-dialed phone calls, and LAN support for electronic messaging and task delegation, improve your network of contacts and associates. Get dressed for success with Focal Point II. Then roll up your sleeves and get down to business.

	Mysterion 1.1s	Neuraber 25, 11	
	Mymu	Sigher Riverstation	No.
	Macteralt face	1	
Washington Delivery	MacEraw II		2111
7 5	A page	etional light	(保)
-	MO.	Conditions.	100
-	100	Tara TEIR	146
- Indicates	1 10	Park District	170
	4		155
del	- 1		_
5 10	5		- 186
The Parties States	1 12		
TINE .	14 12		- 188
The same last	1 1		
12	7 10		1000
If your with them	- 1		-

Switch instantly to any Mac application, then automatically return to Focal Point II where you left off.



Put it all in your briefcase. Focal Point Il's customized reports fit popular personal organizers such as DAY-TIMER™ and Time/Design®



TENpointŌ.

Please circle 129 on reader service card.

Upgrade Now, Save up to \$160

Upgrade from Focal Point to Focal Point II (a \$199.95 value) for just \$39.95 before 1/31/89 (\$89.95 thereafter). Send the first page of your Focal Point manual (originals only) along with your check or money order (add \$4.50 shipping and handling) to: Focal Point II Upgrade, P.O. Box 8123, San Francisco, CA 94128.

© 1988 TENpoint0 P.O. Box 3048, Menlo Park, CA 94025. Distributed by MEDIAGENIC.

Doing Business Since 1980

The Acknowledged Leader in the Computer Mail Order Industry.

Call About the Availability of Other Products Not Listed.

SOFTSTYLE



AIR EXPRESS SHIPPING You Pay The Ground Shipping We Pay The Air Difference

HARDWAR

ACCESSORIES	
CURTIS MANUFACTURING	
Curtis Ruby	\$46
EMS	
Mac + to Hayes Modem Cable	Call
FARALLON	
Mac Recorder Sound System	118
KALMAR DESIGNS	
Micro Cabinet	13
Double Micro Cabinet	18
Triple Micro Cabinet	26
KENSINGTON	
A/B Box	57
Appletalk Cable Clips	
Appletalk Connectors	
Disk Drive Cleaning Kit	
Macintosh II Stand	17
MasterPiece 400	
Monitor Cable Mac II Ext. Kit .	28
Mouse Cleaning Kit w/Pocket	14
System Saver Mac (platinum)	
Tilt/Swivel	
Turbo Mouse ADB NEW	
Xtra Long ADB Keyboard Cabl	e 23
KRAFT	
3 Button Quick Stick	29
MAXELL	
3.5 DS/DD (100)	145
ORANGE MICRO	
Grappler C/Mac/GS	70
Grappler L/Q	

Mac Enhancer
SONY
3.5" DS/DD
3.5" SS/DD19
OPS
Teleconnector DIN-835
DIGITIZER
Mac Vision \$195
DISK DRIVES
MEMORY UPGRADES
AMERICAN MICRO
3.5" 800K Ext. Floppy Drive \$182
AST RESEARCH
86 Co-Processor SE 390
286 Co-Processor II 1,042
CMS
Mac Stack 20 MB 489
Mac Stack 30 MB 539
Mac Stack 60 MB
Pro 80 SCSI 80MB 1,025
Tape Stack 60 MB Tape Back up 675
DOVE COMPUTER CORP
MacSnap 524 296
MacSnap 524E
MacSnap 524S
MacSnap 548 545
MacSnap 548E 532
MacSnap 548S 586
MacSnap Plus 2
MacSnap 2S
MacSnap 4H
SCSI Interface/Port119
SUST IIITELIACE/FUIL

EVEREX
All Models Call
GENERAL COMPUTER CORP
FX-20 Platinum 20 MB 592
IOMEGA
Bernoulli Dual 10 MB 1,520
Bernoulli Dual 20, 5.25 MB 1,765
RODIME
Rodime 20 Plus 592
Rodime 45 Plus
Rodime 60 Plus EXT 989
Rodime 140 Plus EXT 1,245
Rodime 450 RX
Rodime 1000 RX INT 955
Rodime 1400 RX INT 1,085
TECMAR
Mac 40 MB Tape Back Up 909
INPUT/OUTPUT DEVICES
ABATON
ProPoint
MOUSE SYSTEMS
A + Mouse
A + ADB Mouse
ORCHID
Color Vue Se
SIGMA DESIGNS
LaserView 15" for MAC SE 1,234
LaserView 19" for MAC SE 1,545
LaserView 15" for MAC II 1,299

LaserView 19" for MAC II 1,609

KEYBOARDS

DATADESK									
101 Keyboard	+						\$	12	7
101-A DB Keyboard	j			+		+		12	7

LASER PRINTERS.
AST RESEARCH
TurboLaser P/S\$3,86
MINEMS

ANCHOR

Mac Pac 2400 \$13	9
HAYES	
Smartmodem 1200M/w Software 33	0
MIGENT	
Pocket Modem 10	3
PROMETHUES	
Pro Modern 1200 20	7

LIOW	U	JI	91	"	ď	~	u	U	٠	×	Ä	*		٠	A		201
US ROE	30	1	1	C	S												
1200 .					,				·								171
2400					٠					,			,				295

Personal Laser \$1,398

GENERAL COMPUTING

SCAN	٨	t	1	ß	5				
AST RESEARCH									
TurboScan SF						í	y	Ļ	\$1,107
TurboScan FLBD .	,							,	. 1,237
SUMMAGRAPHICS									
All Models									Cal







We also carry an entensive line of MS, DOS and related products.

- No charge for VISA and MasterCard.
- · We Do Not Charge Your Card Until Your Order is Shipped.
- . You Pay the Ground Shipping: 1-10 lbs. \$6.00, 11-20 lbs. \$10.00 (except Alaska and Hawaii). We Pay the Air Difference.
- - Free Air applies ONLY to orders up to 10 lbs. & Over \$100.
 - All products carry only manufacturer's warranties (including DOA's). We do not honor guarantees, rebates, trial period privileges or promotional programs offered by manufacturers. No returns on misordered or open product. No APO, FPO, or international orders, please.

 - Call before submitting P.O.'s. Ask for National Accounts.
 - Personal and Company checks will delay shipping 3 weeks.
 Prices, terms & availability, subject to change without notice.
 - Add 5% for C.O.D. orders.

MacSnap Toolkit 15

- · We do not guarantee machine compatibility.
- To place an order: 1-800-MAC-ONLY.
- To follow up on an order: (602) 944-1037.
- Order Line Hours: Monday-Friday 7:00 a.m.-6:00 p.m. Saturday 9:00 a.m.-1:00 p.m. - Order Processing (602) 944-1037;
- 10:00a.m.-3:00 p.m. Mon.-Fri.



Mailing Address: 8804 N. 23rd Ave./Phoenix, AZ 85021

1-800-MAC-ONLY

ORDER LINE

SOFTWARE

ACCOUNTING	DESKTOP PUBLISHING	LANGUAGES	UTILITIES & HYPERCARD
Business Sense\$262	Pagemaker \$345	Lightspeed C\$103	STACKWARE
Chang Labs Inventory Control 220	Ready, Set, Go! 262	Lightspeed Pascal74	Bulkmailer
Chang Labs Rags to Riches 3-Pak 276	Ready, Set, Show 155	Turbo Pascal	Bulkmailer Plus165
In House Accountant 103	SuperGlue42	Z Basic	Business Class
MacMoney	Copordiae		City to City
Peachtree Back to Basics 140		MATH	Fastback Mac
Satori Legal Billing II 287	EDUCATIONAL	Calculate Constr. Set\$28	Forset Bus. Forms Edit. 1 45
Satori Project Billing 327		Calculus	HFS Navigator32
DUCINECE COETWARE	Math Blaster! \$24	Data Desk Professional 262	Hyper DA33
BUSINESS SOFTWARE	Typing Tutor IV	Eureka: the Solver Mac 122	Hyper Tutor27
Cricket Graph\$109		Pre-Calculus 25	
MS Excel	ODADUIGO		Laserspeed
MS Works	GRAPHICS	MONEY MANAGEMENT	Macinuse
Statview 512 +	Adobe Illustrator \$262	Dollars & Sense	My Disk Labeler w/color32
Works Plus Command 53	Canvas	Tobias Managing Your Money 114	The Nightwatch79
CAR PROPULETE	Certificate Maker20		Prototyper
CAD PRODUCTS	Click Art Business Images 27	SPELLING & GRAMMAR	Read-it
Cricket Draw\$156	Click Art Christian Images31	Coach \$47	Report!55
MacDraft	Click Art Effects	Coach Professional	Shanghai
COMMUNICATIONS	Click Art EPS Illustrations 69	Coach Professional Multi-User 233	Smooth Talker29
COMMUNICATIONS		Coach Thesaures	Video Works Hyper Card Driver 54
inBox Starter Kit \$185	Click Art Holidays	Doug Clapp's Word Tools 38	Video Works II Accelerator 106
inBox Personal Connection 66		Spellswell	
LapLink	Click Art Letters, Vol. 2 26	Thunder!	WORD PROCESSING
Mac Serve	Click Art Personal Graphics 27	Word Finder 28	
Quick Mail	Click Art Publications 27	Word Filluct	Mindwrite Express \$117
Smartcom II	Cricket Paint	SPREADSHEETS	
Tops for Mac	Crystal Paint38		WORD PROCESSORS
ODE ATUE COSTWARD	The Curator	Mac Calc	
CREATIVE SOFTWARE	"Draw It Again Sam" 70	Mac Sqz!	FullWrite Professional \$235
ConcertWare +\$33	GraphicWorks 79	101 Macro for Excel	MS Write
ConcertWare + MIDI70	Image Studio 262	Trapeze	MS Word
Deluxe Music Construction Set 72	Laser Paint B/W261	HTHITIEC	Word Perfect
Digital Darkroom157	Laser Paint Color II	UTILITIES	Write Now
Studio Session 42	Mac The Ripper25	Calendar Maker \$24	
DATABASE	Mac 3-D	Copy II Mac	GAMES
DATABASE	Pict-O-Graph95	Diskfit	Balance of Power\$27
C.A.T\$219	Picture Base	Disktop24	
DBase Mac 285	PixelPaint	Findswell	Beyond Dark Castle
Double Helix II	Post Art	Icon-It!	
Geoquery	PosterMaker Plus	Multi-User	
Omnis 3 Plus/Express 269	Print Shop	Super Laser Spool 186	Déjà Vu
Overvue	Printworks	My Disk Labeler w/Color 32	Early Games
DESK ACCESSORIES	Super 3-D	PowerStation	Falcon
	SuperPaint71	QuicKeys	MS Flight Simulator 29
Comment		Sentinel	Patton vs Rommel 23
Disk Tools Plus 29	Videoworks 2	Sidekick	Shadowgate
Quick Dex	WetPaint Clip Art 1-2	Stepping Out II	
Smart Alarms	WetPaint Clip Art 3-4	Suitcase II	FONTS
Smart Alarms	World-Class Fonts! 1-2	Super Laser Spool71	
Multi-User w/Appointment Diary 79	World-Class Fonts! 3-4 38	SuperSpool47	Fontshare
SmartScrap & The Clipper 42	3-D Graphics	Tempo II	Orchestra of Fonts, Vol. 4 23

ate a new area for painting, or select an existing paint zone, you can specify or change the bit density (from 72 to 2,540 dpi). Any time you resume painting in that area, you're automatically painting at that resolution.

As talented as Canvas is, a given

paint item can contain only two of 16.7 million colors — the ink color and the "paper" color. But this can't really be considered a lapse since Canvas makes no claim to be PixelPaint. The paint function is available primarily to allow you to edit imported TIFF files; the

program's publishers prefer to think of it as a bit-map editor.

You can layer paintings and objects of various colors (as you would in Illustrator) to achieve a desired multicolored effect. Each of your paintings is treated as a floating mini-easel that can be moved and restacked like any other object. Its background can be perfectly clear, so you can build a single image with many painted layers.

There's an airbrush or "spray can" icon and an accompanying Brush Manager to set the pattern shape and flow rate. The standard (editable) brush, paint can, pencil (with its own zoom ability), and eraser are all there and work predictably. You can crop bit maps by hand to any degree, or automatically trim off excess white space by invoking the Crop command. To ice the cake, the Autotrace feature creates an editable smooth or sharp-cornered polygon to follow the inner and outer contours of any selected bit map or bit-map section.

HOLY MACRO!

Canvas 2.0's MacrObjects facility provides for simple construction and access to object libraries, allowing you to create easily reusable objects to customize your work environment for specific tasks such as electrical or construction design. To create a macro you select a draw or paint object, or a group, and then officially dub it a macro by naming it in the Macro menu. Its name, along with a small icon of the object, will then appear in the Macro menu of your current document. To use a macro, you select it from the Macro menu and then click somewhere on your document to create automatically an exact-size copy of the original. You can change its size by simply dragging.

Macro sets can be named and saved and used independently of the document in which they were created. Mac-Draw II also uses object libraries, and lets you save or access library objects by name from a dialog box that displays a large-size preview.

CANVAS CAN

Canvas 2.0 also comes as a less powerful, but very capable desk accessory.

From the Leader in Financial Software

Desktop Investing



.

Pro Plus Accounting.

Available Now!

Accounting

Powerful, Integrated, Affordable

Wall Street Investor.

Now Version 3.0 More powerful than ever!

MAJOR FEATURES

- · Portfolio Management
- · Technical Analysis
- · Fundamental Analysis
- On-line Trading with Fidelity Discount Brokerage Service

3.0 ENHANCEMENTS

- · Multi-Account Mgt. Capabilities
- · Point & Figure Charting
- · Additional Portfolio Reports
- · On-demand Real Time Quotes
- · Data Import/Export
- · Additional Trend Studies

Call us for more information at

(602) 461-3296 ext. 22



PRO PLUS SOFTWARE

"The Leader in Financial Software"

2150 E. Brown Rd., Mesa, AZ 85203

SYSTEM FEATURES

- · On-line Help
- · Customized Forms
- · Multi-Level Password Protection

GENERAL LEDGER

- · Integrates for Automatic Posting
- · Automatic Reversing Journals
- · Recurring/Automatic Entries
- · Budgeting Capability

ACCOUNTS RECEIVABLE

- · Integrates with G/L & Inventory
- · Unlimited Customers
- · Order Entry

ACCOUNTS PAYABLE

- · Integrates with G/L & Inventory
- · Unlimited Vendors
- · Manual & Preprinted Checks

INVENTORY CONTROL

- · Integrates with G/L & A/R
- · Unlimited Items
- · Four Costing Methods
- · Physical Inventory Maintenance

Macintosh is a trademark licensed to Apple Computer, Inc. Wall Street Investor is a trademark of Pro Plus Software, Inc Pro Plus Accounting is a trademark of Pro Plus Software, Inc.

Please circle 184 on reader service card.

Please circle 186 on reader service card.

At this writing, the DA is included as part of the program package. The DA version, over 400K, runs well on a 1-megabyte Mac.

To sum things up, Canvas 2.0 has all the best of its original iteration, plus greater depth and some powerful and welcome new features. It is stiff competition for MacDraw II, and in several comparable areas it's stronger. In other respects the two programs come out about even, but even in areas where Canvas falls a little behind, it's catching up fast. At this writing, Deneba is adding enhancements — and not just little ones. Based on what we've seen of a beta version of the next release, they're going for the gold.

Overall, Canvas 2.0 is a better value, and would be even if the two programs were priced identically. Canvas' painting talents — impressive for a draw program — and its companion DA definitely tip the scales in its favor. As a free upgrade to version 1.0, who can argue? Even for the full price, Canvas 2.0 could be the single graphics program to fit most illustration needs.

PHILLIP ROBINSON WRITES BOOKS AND ARTICLES ABOUT COMPUTER GRAPHICS ON MACS, PCS, AND WORKSTATIONS. HE IS AN EDITOR FOR THE ARCHITECT'S PC NEWSLETTER.

MACUSER RATING

Canvas 2.0 \$\$\$\$\$

Follows Mac Interface:

Printed Documentation:

On-Screen Help:

Performance:

Support:

Consumer Value:

Comments: Richly endowed new version of a popular drawing/painting program. New features include full Bezier curves. auto-tracing of bit maps, full support of 16.7 million colors, perspective and skew commands, and a simplified interface. Best Feature: Combination of complete drawing tools set with ability to edit highresolution bit maps. Worst Feature: Transformation of distorted text into bit maps. List Price: \$299. Published by Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122; (305) 594-6965. Requires at least 1 megabyte RAM, two 800K floppies, and System 6.0. Supports color on Mac II and runs under Multi-Finder. Not copy-protected.



Please circle 7 on reader service card.



68030 for the Mac II

Over twice as fast

Step a Generation Ahead

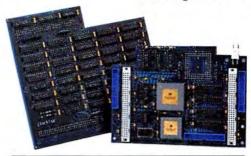
Powerful new Macintosh™ software needs a new generation of hardware. Advanced graphics and engineering software now has the potential to make your Mac II or Mac IIx perform better than high-end workstations costing \$25,000 or more. But software alone won't get you the workstation you need — the DayStar™ 33/030 Accelerator II™ will upgrade your Mac II/IIx hardware into a powerhouse workstation, and at a fraction of the cost.

Take Your Mac II Past Its Limits

Complex illustrating, drawing and CAD layout is no longer a drag, click and wait. With the DayStar 33/030 Accelerator II you can increase your Mac II/IIx speed from 16 MHz to a blazing fast 33 MHz. A state-of-the-art 33 MHz 68030 processor and high speed data cache adds the power that lets you fly — everything runs at well over twice the speed, and up to four times faster than your standard Mac II/IIx. Kick in the afterburner with the optional 33 MHz 68882 math coprocessor, or use your existing 16 MHz 68881.

Plug In and Take Off

Installation is easy, just like installing SIMMs. Simply unplug the 68020 processor and plug the 33/030 Accelerator II right in. Don't change your SIMMs because the 33/030 runs at full speed with the memory that you have. It's fully compatible with all standard Mac II/IIx software, including A/UXTM.



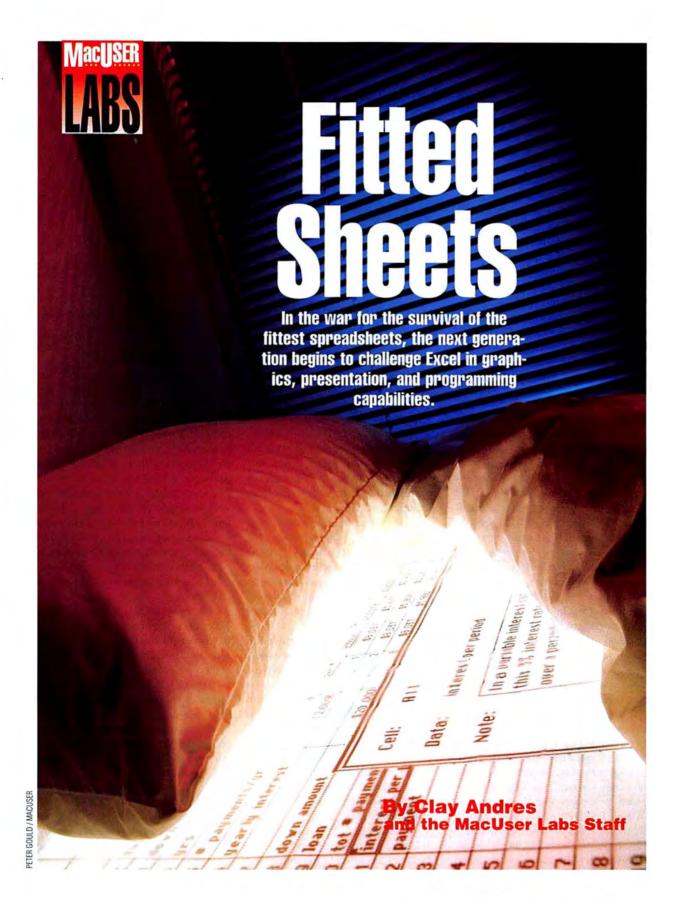
Now shipping! Call our toll-free hotline today to receive the name of the nearest DayStar dealer.

1-800-962-2077

Other brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice. ©1988 DayStar Digital, Inc.



5556 Atlanta Highway • Flowery Branch Georgia 30542 • (404) 967-2077 • FAX (404) 967-3018



Spreadsheet Comparison

efore there was a Macintosh or even a PC, VisiCalc roamed a numeric world of two worksheet dimensions—the x,y-axes—apparent master of all it surveyed. But that's just another dinosaur story. As with other species, VisiCalc's extinction was aided and shotted by the agricult

tion was aided and abetted by the arrival of two formidable predators: Lotus 1-2-3 and Microsoft Excel. Since then, aeons have passed in computer time, and other Darwinian tales are in the making. Lotus 1-2-3 is already a dinosaur (even though it's not extinct), since Excel has surpassed it on many counts. On the Macintosh side, Excel's reign has continued for quite some time. But predators can become victims, just as successive species can perish because of an inability to adapt to changing conditions. Neither Lotus 1-2-3 nor Excel has seen a major upgrade since its introduction, though both companies are promising imminent changes.

The fact is, the spreadsheet has evolved beyond simple row-and-column tables and is fast becoming something rich and strange. State-of-the-art Macintosh spreadsheets can now variously offer database management, graphics, presentation capabilities for desktop publishing, and macros for automating repetitive processes. Macros themselves have burgeoned into full-fledged programming languages. With Full Impact from Ashton-Tate (the No. 3 software company) and Wingz from Informix Software, you get more powerful presentation capabilities than with Excel and a higher level macro language. In fact, Wingz's language is not based on macros at all but is a compiled language on which the interface is built.

It's nonetheless important to put things into perspective and to cut through the hype. While Full Impact is being marketed as a spreadsheet for desktop publishing, it has none of the layout tools necessary for precise placement of elements on a page. The same is true for Wingz. For DTP you have to turn to Ragtime 2 from Cricket Software. Ragtime 2 does desktop publishing of spreadsheets the way Mac users expect it should be done, and its forms-creation capabili-



ties have made it very popular in Europe, where the program was written. For that matter, Trapeze from Access Technology — a true power user's spreadsheet — also has some superior presentation features going for it, though the program takes some getting used to.

But not everyone wants a spreadsheet that can walk the DTP dog. A powerladen program can be its own worst enemy if it's difficult to learn or use. This has been one of the chief complaints about Excel, which spawned numerous training courses and texts.

People who need a spreadsheet only for keeping simple budgets or presenting expense statements may want to consider MacCalc from Bravo Technologies. MacCalc has no graphics capabilities, but it offers good performance and a low price. It also ran faster than Excel in most of our tests.

Then there's your non-power user with multiple needs, such as word processing, spreadsheet, and database. How about a program that addresses those needs? Microsoft Works is aimed at this market. It includes four easy-to-use integrated applications — spreadsheet, word processor, database, and communications — plus a drawing palette. Works is convenient and economical, but it's easy to outgrow any one of its applications.

As in any crowded software field, users should do their own targeting when buying a spreadsheet. You don't need a Clydesdale to cross the street. We at MacUser Labs will help you define what you need by examining seven spread-

sheet programs for the Mac and comparing them to Lotus 1-2-3.

SPREADSHEET BASICS

VisiCalc laid down the common denominators. A spreadsheet must, at the very least, have horizontal and vertical arithmetic, usually expressed as rows and columns. It should allow formula entry into any cell, so that new data can be created anywhere on the spreadsheet. And it should provide dynamic cell linkage, so that formula cells automatically update when a referenced cell changes. These three basic abilities allow spreadsheets to manipulate large amounts of data and to test or analyze the results. From there, a rich overlay of features stretches the spreadsheet paradigm past the point of recognition.

Data entry, editing, and navigation:
Six of the seven programs we tested use
the same method of data entry: numbered
rows and lettered columns with a matrix
of thousands of blank cells extending out
far past the screen. (Trapeze, the exception, uses blocks instead.) This data-entry
method is somewhat misleading. While
companies boast about the number of
cells in their worksheets, what they fail to
tell you is that most of the cells can't be
filled with data.

The only spreadsheets we could fill were MacCalc, which has a relatively small spreadsheet (125 columns by 999 rows) and Full Impact (256 columns by 2,048 rows, using *virtual memory*, the strategy of using disk space as a memory buffer when RAM is full). Excel—which

can use only 1 megabyte of memory, regardless of how much RAM is in your Mac — had the smallest maximum size of the seven Mac spreadsheets we tested (on a 1-megabyte SE, 256 columns by 204 rows, with 213 cells in the 205th row). Under almost all conditions, Full Impact's virtual memory is fast and efficient. However, you need lots of disk space, and under certain conditions (such as large databases, sorts, or copies on a machine with 1 megabyte of RAM), the program will page between memory and disk for hours. This is called thrashing.

Typically, spreadsheets let you type text, numbers, and formulas into the appropriate cells to build a model. Cells can then be selected and edited within the formula bar at the top of the spreadsheet. Ragtime 2 is the only spreadsheet that has a cursor in the cells themselves in addition to the formula bar. And why not? Indirect editing is a holdover from VisiCalc and the PC. All Macintosh programs should be able to edit data directly on the page.

Selecting ranges of cells is also a standard spreadsheet feature. In addition, Excel, Full Impact, and Wingz have island selection. This enables you to select a noncontiguous range of cells by using the Command key to extend the range. Wingz and Excel can select whole rows and columns concurrently using this technique.

For moving around, Full Impact and Wingz also have navigation arrows: You click an arrow, and the screen cursor moves to the next or last active cell in that direction. To speed up moving around, all of the programs have Go To commands except MacCalc, which has Search by Text or Value commands. In addition, Full Impact lets you type a cell reference or range name into the location indicator, and it will go to that selection. Wingz has a Go menu with the most complete Find command of any spreadsheet - it will find cell types in addition to cells and text. It also has a Select command that can select all cells of a particular type or

While no one product looks quite like this spreadsheet amalgam, this illustration defines many of the handy features available on Mac spreadsheets. select a cell's dependent or precedent cells. This is a valuable auditing tool.

Full Impact enhances the interface with icon bars that allow you to click on an icon to execute a command, rather than locating it in the pull-down menus. There are three bars of 14 icons that can be customized for your personal use. If you're typing data and using the keyboard, the icons are not that useful. If you're editing, entering formulas, or creating graphics, however, your hand is probably already on the mouse and the icon bars are quick and convenient to use.

Trapeze fits the three basic requirements of a spreadsheet but throws away the row-and-column model. Instead, you create blocks and place them on a blank page. Each contains cells into which you can enter data. You can always reshape the cells within the block, add or delete cells, and rearrange blocks on the page.

Numeric blocks in Trapeze can contain as many as 32,000 by 32,000 cells, but there is no way to reference the individual cells by column and row numbers. Instead, you reference entire blocks by name and index. Titles and labels must be

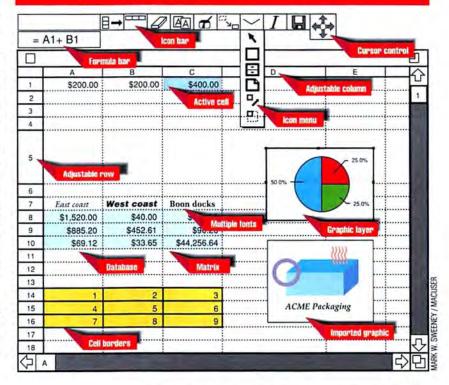
entered as separate blocks, since you can't mix text and numbers. Trapeze work-sheets are built of many smaller blocks linked by formulas.

The advantage of Trapeze's blocks is that they impose a certain orderliness that can be very helpful when you're creating large or complex models. Different elements exist as distinct, named blocks that make the underlying logic clear and auditing easier. The disadvantage is that you can't simply start entering data and changing the format as you go. Trapeze worksheets require a certain amount of planning.

Data formats: Data for all the spreadsheets we tested can be displayed in various formats, including text, fixed, float, scientific, logical, date, and time (although MacCalc has no time format). All seven of these programs can control the number of decimal places and the way in which negative numbers are displayed. They all can also add commas and dollar signs to numbers automatically.

Excel has the ability to define custom data formats and add them to the menu. This makes it easy to display interna-

Anatomy of a Spreadsheet

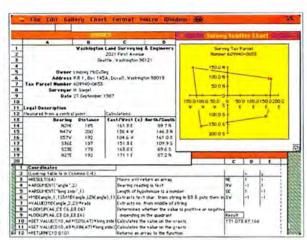


Excel 1.5

Excel creates three separate, linked files for a spreadsheet (top left), chart (right), and macro (bottom). This Excel application converts surveyors' readings into a site plan.

Notice the custom data format on the spreadsheet (N29E, for example), which is unique to Excel.

Microsoft Corp. 16011 N.E. 38th Way Redmond, WA 98033 (208) 882-8080 8395



tional currencies, to combine date and time formats, or to create special-purpose formats for data like compass bearings. You can also define colors to go along with Excel's data formats. Wingz scripts can be written to customize data formats, but these are controlled from the Script menu rather than the Format menu and are not as simple to create or use.

Excel's custom data formats are so useful that it isn't clear why other programs haven't adopted or improved upon them. Like direct cell editing, they provide the kind of flexibility without complexity that one expects from Macintosh programs.

Calculations: As far as spreadsheet calculation speed goes, none of the Mac programs on an SE was as fast as Lotus 1-2-3 on a Compaq 286 (see "How the Spreadsheets Were Tested"). Excel and a beta version of Wingz were faster than 1-2-3 on a Mac II but not on the most important test, which tested the speed of

arithmetic operations that make up the bulk of spreadsheet calculations.

Among the Mac programs, MacCalc showed the fastest arithmetic recalculation speed on an SE, while the beta version of Wingz showed the fastest time on a 4-megabyte Mac II. Wingz also had the best overall speed on the Mac II. Ragtime 2 was conspicuous as the slowest program overall on either computer. Only Excel, Full Impact, and Trapeze could handle a large (15,000-cell) spreadsheet when limited to 1 megabyte of memory.

Remember that a purchasing decision should not be based on speed alone. The way you do spreadsheet tasks is also very important, and much time can be spent in setting up calculations. When you build a formula, each program will recognize the difference between text and numeric data, and typing an equal sign (=) puts the program into Equation mode. With Full Impact, though, you don't always need to type the equal sign, because the program

automatically recognizes any of its builtin functions as being part of an equation. That's a simple example, but it's the kind of shortcut you should look for in any program you evaluate.

Typically, you type in numbers, operators, or cell or range references, or you use built-in functions to create equations. All of the programs allow you to choose built-in functions from the menu and paste them into the formula bar. Wingz pastes variable names along with the function as a reminder. Trapeze has submenus for built-in functions, operators, and block names.

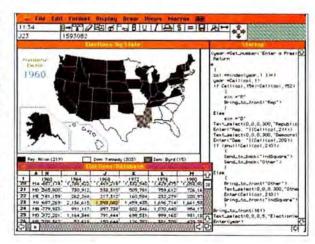
All spreadsheets adjust equations automatically when you move or copy equations or add or delete rows and columns. In cases where equations contain fixed cell locations, the references can be made absolute so that the equation doesn't change when copied to a new location.

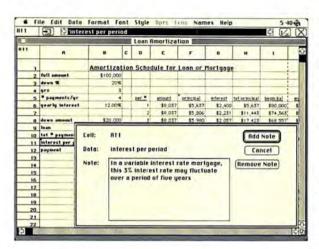
Built-in functions are extremely useful. For example, it is much easier to type

Full Impact 1.0

This Full Impact spreadsheet plots the results of every presidential election. The non-spreadsheetlike graphic and the database at the bottom are actually on the same spreadsheet, with the map as a layer on top of the data. The macro window at the right works as a text editor rather than a spreadsheet and indents automatically, a feature programmers call pretty printing.

Ashton-Tate 20101 Hamilton Ave. Torrance, CA 90502-1318 (213) 329-8000 8385





MacCalc 1.2

It's possible to format the data in MacCalc to make an attractive presentation. In this sample, you have variable row heights and different font sizes. You can also assign notes to any cell, indicated for future reference by a small black box in the upper-left corner of the cell.

Bravo Technologies, Inc. P.O. Box 10078 Berkeley, CA 94079-0078 (415) 841-8552 \$139

=SUM(A1:A100) than to select each cell and type a plus sign (+) each time. Also, most of us don't know or remember the formulas for calculating compound interests or computing mortgage payments. All the programs have built-in mathematical, statistical, logical, trigonometric, financial, and spreadsheet-manipulation functions. In addition, all the spreadsheets except Works have date functions, and Excel, Trapeze, Full Impact, and Wingz have database functions.

Excel's Paste Function command lists all 131 functions alphabetically, which makes finding the right one difficult (though typing the first character or two will put you in the range that you want). Full Impact, Wingz, and Trapeze use hierarchical menus so that functions are subdivided by type. Wingz has 146 defined functions (with an additional 159 HyperScript functions), while MacCalc has the fewest with 51. Excel has the ability to write custom functions and add

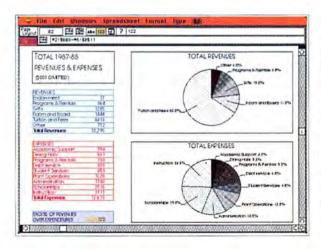
them to the menu list. Full Impact function macros are displayed in the macro menu (see "Macros" section of this report).

In Ragtime 2, each cell can contain a second formula that affects the action of the first. If the second evaluates to true, then the main formula is calculated; otherwise, the cell value remains unchanged. Entering a value into the cell will not overwrite the second formula. This feature makes it possible to replace one value with another (for example, to substitute *low, medium, high* for 1, 2, 3).

Arrays and matrices: Data analysis does not always proceed in simple cell-and-range fashion. It is often helpful to have functions that can act on a group of cells simultaneously while keeping their spatial arrangement intact. Trapeze, Wingz, and Excel allow you to do arithmetic on entire tables, which are called matrices (an array is a single row or column.) You can multiply or add two

matrices together, getting another matrix as a result (matrix arithmetic). Statistical functions like regression analysis and frequency distribution require matrix inputs. You can also solve systems of simultaneous equations using Wingz's NSOLVE function or Trapeze's GAUSS function. Excel comes with an example of how to build a macro to solve systems of simultaneous equations using Gaussian elimination.

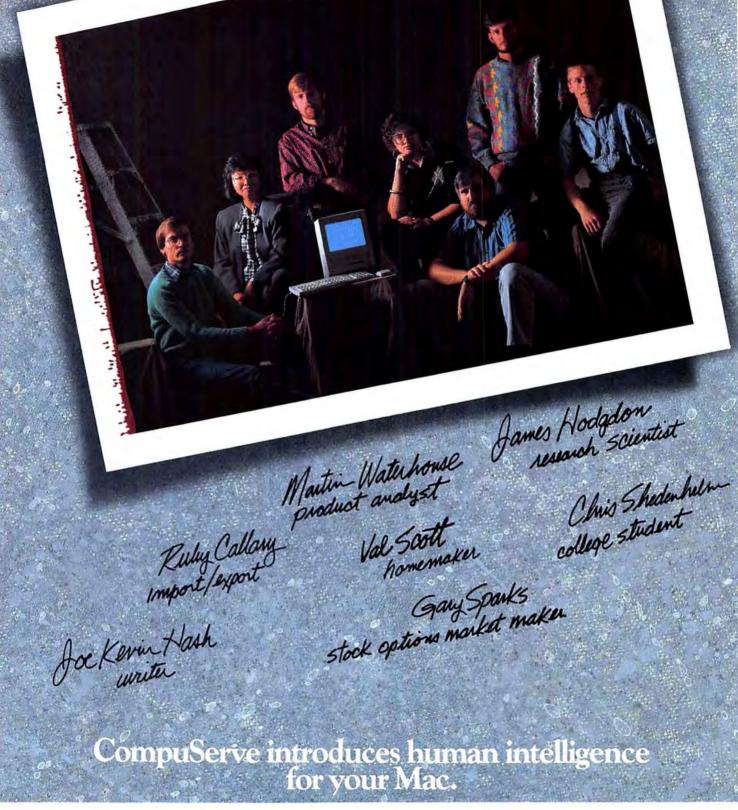
Trapeze's table blocks all functions as arrays, while in Wingz and Excel the arrays must be specifically defined. Because Trapeze's functions all use matrix arithmetic, this program can adjust block size automatically. For instance, Trapeze has an Amortize function that can be entered into a single-celled block. When the function is evaluated, the resulting block expands to a four-column amortization schedule with as many rows as there are payments. Change the length of the loan, and the table auto-sizes to re-



Ragtime 2.1

Ragtime 2 has the tools to precisely position elements on the page. This page consists of several separate, small, linked spreadsheets with charts imported from Full Impact. Graphics in PICT or other formats can be imported from a variety of programs. Ragtime also has the unique ability to format every character of every cell.

Cricket Software 30 Valley Stream Parkway Malvern, PA 19355 (215) 251-9890 \$395



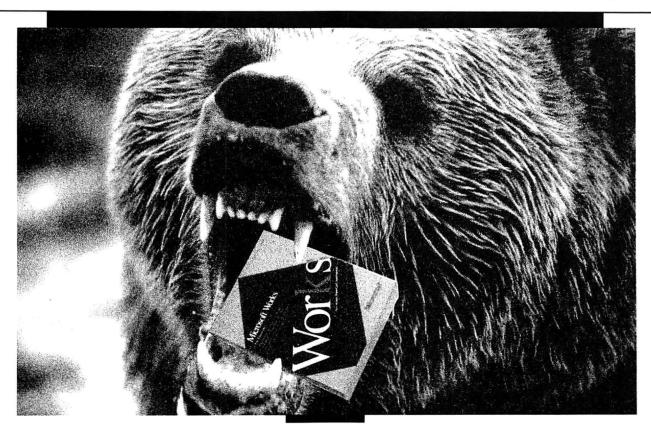
Thousands of people just like you have put their heads together to form one of the world's most advanced data processors—CompuServe's Mac® Forums. And they'd like you to join them.

Forum members share problems and solutions on our bustling message center. They access and contribute to huge data libraries teeming with the best shareware and public domain software anywhere. And they take on the latest computing topics in live, online conferences.

Nothing can make your Mac as intelligent or as friendly as CompuServe's Forum members.

To join CompuServe, see your computer dealer. To order direct or for more information, call 800 848-8199. If you're already a member, type GO MACINTOSH at any! prompt. **CompuServe***

Please circle 119 on reader service card.



MICROSOFT® IMPROVED WORKS. WE MAKE IT EVEN MORE POWERFUL.

THE SMARTEST, FASTEST SPELLING CHECKER FOR MICROSOFT WORKS 2.0.

WorksPlus* Spell 2.0 piggybacks on top of Works, providing additional features like spell check typing, hyphenation and glossary. (Also compatible with Works 1.0 and 1.1.)



WORKS

- 60,000 word spelling dictionary.
- · 22 words per second.
- · Not available.

WORKSPLUS SPELL

- · 73,000+ word spelling dictionary.
- 350 words per second (15 times faster).
- "Smart Spelling" lets you make changes and resume spell checking.
- · Hyphenation.
- · Glossary (with time & date).
- · Spell check typing.
- · Dictionary look up.

1989 MacGuide Golden Gavel Award Winner.



WORKS

- Simple mouse and keyboard macro recorder.
- · Not available.
- · Not available.
- Copy & paste to create multi-column labels.
- · Not available.

THE MOST POWERFUL AND INTELLIGENT MACRO PACKAGE FOR MICROSOFT WORKS 2.0.

WorksPlus Command 2.0 transforms Works into a power user's dream. Yet first time users can take advantage of the many built-in functions immediately. (Also compatible with Works 1.1.)

WORKSPLUS COMMAND

- Sophisticated macro recorder with full programming language.
- Macros can be edited and assigned to menus.
- Built-in macros perform many tasks like global search and replace, dial phone, and table of contents.
- Automatically creates multi-column labels or reports.
- Dialog editor prompts for information.

principal developers of Microsoft Works.

Designed by Tim Lundeen, one of the



Lundeen & Associates 1000 Atlantic Ave., Ste. 107 Alameda, CA 94501

A Mac Magna Charta: How to Build a Chart



Creating charts is one of the more common spreadsheet user tasks. Take a look at how the five charting spreadsheets go about it.

Charts in Full Impact and Wingz, the two newest programs, are the most similar. Both have graphic layers that can draw objects, including chart objects, over the spreadsheet. Trapeze has a chart block type. This has the affect of appearing similar to Full Impact and

Wingz, but it is not at all like a graphic object. Excel's charts exist as separate documents linked to the spreadsheet by reference, while Works' charts are part of the spreadsheet document but are displayed in a separate window.

In all the programs except Works, you select the data and execute a Chart command, and a default chart is created. Works has a Chart command that opens a dialog box. You fill in the appropriate information, including the data ranges. This means you must know the coordinates of the data range before you choose the Chart command, because the dialog box will most likely obscure the information. Click OK and the chart appears in a new window. To modify a Works chart or to see the effect of data changes, you must go through the dialog box again, since you cannot edit the chart directly.

Full Impact is the easiest to use. Select the data range and click on a chart icon or choose a chart type from the Chart Gallery command. A chart pops up on the spreadsheet and can be moved or sized anywhere on the spreadsheet. The screen scrolls automatically when enlarging a chart past the edge of the screen.

To customize a Full Impact chart, you can modify all chart elements using the Get Chart Info command in the File menu. It's not the most logical place for the command, but it is very convenient to set all of the chart attributes from a single dialog box. You can also format the text and type in titles directly on the chart. You can drag the legend to position it anywhere along the graphic boundary of the chart. To explode a section of a pie chart, you simply pull it out with the mouse. You can use island selection for charting noncontiguous data, but labels must be adjacent to the data for Full Impact to find them.

Trapeze is similarly easy, but you have to write a chart formula — for example, Piechart(chartrange) — to create a chart block, though it's very easy to alter the chart parameters. Double-clicking on the chart block brings up a dialog box for modifying the various chart elements, obviating the need to hunt through the menus to find the right command.

To create a Wingz chart, you first select the data, click on the chart tool, and drag a box where you want the chart to be. The chart appears in the box, but unfortunately, the box can't be bigger than the screen. In the beta version we saw, the screen doesn't scroll to accommodate charts larger than the screen, so you must enlarge them by manually scrolling the screen and then resizing the chart. This is not very Mac-like. Getting charts placed and sized can take several steps. We hope that this will be corrected in the final release.

The method of modifying charts and chart elements in the beta version of Wingz was cumbersome for anything except the simplest plots. You can select any of the chart elements (legends, axes, series) and then modify them using the appropriate chart command. It can take many trips to the menu bar to get a chart just right. All ranges must be designated on the spreadsheet and set from the Graph menu — this includes titles, headings, and footnotes. Series labels must be part of the data range, so you often have to copy pieces of the spreadsheet to a new range to assemble all the chart pieces in the proper order. There is no way to edit or type on the charts directly.

Moving and sizing a chart with Wingz, Full Impact, or Trapeze can be done anywhere on the page, and when data is updated, the charts update simultaneously.

Excel's chart documents are created by choosing the File New command and choosing Chart as the new document type. A new window opens with the selected data charted. Excel automatically creates a chart formula, which is similar to a Trapeze formula without the chart function name. Formulas make it possible to chart data from different spreadsheets in a single Excel chart. When an Excel chart window is active, you get a different set of menus with commands to customize the appearance of the chart. You can change chart types; format axes, borders, tick marks, legends, and text; attach text; draw arrows; select patterns; customize the plot; and explode wedges of a pie chart.

You can edit the Series formula as you would any function — directly in the formula bar by typing, or dynamically on the linked spreadsheet by making selections. You can also change the order of the axes titles, legend, or data series, or you can add or delete the series.

— Clay Andres

flect the new number of payments.

THE INTEGRATED WORLD

Lotus 1-2-3's lasting contribution to spreadsheet standards was the integration of charts, database functions, and macros with the spreadsheet. Lotus engineered the strategy because it was difficult to share data with other applications in the old PC days. Sharing data on a Mac has always been easier than on a PC, but 1-2-3's combination has turned out to be useful for Mac spreadsheets too. In addition, some Mac programs add desktoppublishing functions. MacCalc is the only program we tested that includes no integrated applications; it is a stand-alone spreadsheet.

Charts: Not only is it easier to look at charts than at numbers but also hidden patterns or trends become obvious when plotted appropriately. Of the seven programs tested, only MacCalc and Ragtime 2 have no charting capabilities (see sidebar, "A Mac Magna Charta: How to Build a Chart").

Full Impact charts are the easiest to create, while the Wingz interface was a bit klutzy in the beta version we saw. Modifying a Wingz chart took many steps because editing and typing directly on the chart was not possible. Excel has some on-chart editing, but it is not as smoothly implemented as in Full Impact.

Excel creates separate chart files that are linked to the worksheet by the Series formulas just as two spreadsheets would be linked. Full Impact and Wingz have chart icons that, when selected, paste a chart directly on the spreadsheet grid. Trapeze's charts are also on the same page as the spreadsheet, but they're created with functions for each chart type. These functions create chart blocks.

It takes longer to define a chart with Trapeze's chart blocks, but the chart formulas give an accurate description of the resulting plot that is easy to edit or audit. There are ten chart types, including a polar-projection chart and a contourshading chart, and there is an example on the Trapeze program disk that combines the Scatterchart function with the Matrix function to produce a 3-D transformation plot.

Full Impact allows you to designate up



Spreadsheet chart types include pie, bar, and 3-D charts, among others. Pie charts typically show percentages of a whole and add up to 100 percent. Segments can be exploded from the pie for emphasis. In our pie chart example, engine sales from 1930 to 1970 are graphed, and the percentage of total sales is given for each engine. To show this information broken down by decades would require four pie charts of increasing size to

indicate an expanding total number of engines sold. A more convenient way to display the information might be to use a stacked bar chart, as in our second example. Instead of percentages, the actual quantities are graphed. if somewhat deceptively: Totals for a decade are given by reading the top of the bar graduated from the y-baseline, but individual segments are not read from the baseline. To figure out a specific segment's quantity, you must subtract the segment from the bar to

obtain the difference. The 3-D chart, our third example, handles this problem by separating the quantity of each engine sold from the total. Each engine is given its own bar, and the figure for that engine is read from the y-coordinate (the baseline). Three-dimensional charts have a tendency to obscure data, but skewing the perspective can help alleviate this problem.

Scatter charts typically plot one value against another, as in our price/performance scatter chart. Values can be plotted over time as well. In our example, engines of higher performance tend toward the right, while the cheaper engines tend toward the bottom. Those in the right-hand corner at the bottom give you the best "bang for the buck." In a scatter chart, the more points there are, the more you need a "best fit" line to judge above-average and below-average price/performance.

This problem is compounded in more complex charts, such as those that require a best-fit curve. Unfortunately, none of the spreadsheets we tested will give you a best-fit line or curve, though some do give you scatter charts. To create the scatter chart shown here, you could use a program like Cricket Graph, or one of the statistical analysis packages mentioned in this report (see sidebar, "Different Sheets On-Line"). - Michael Miley

Flathead 6 Flathead 8 V-6 V-8 V-12 Sales of Engine Types by Decade Sales of Engine Types by Decade Price/Performance for Engine Types V-12 MICHAEL YAPP/MARK SWEENE) E 4.000 Total Flathead 8 3.000

Total Number of Engines Sold, 1930-1970

to ten data series to plot, plus labels and legend blocks. The Format Chart command enables you to customize lines, symbols, grids, frames, axes, patterns, colors, label fonts and formats, and the relative size of the plot within the chart block.

Wingz has 20 chart types, including real 3-D charts. The addition of a third axis is useful for plotting things like sales by month by region that might otherwise require a different chart for each region. Unfortunately, in the beta version we tested, performance became unbearably slow whenever there was a 3-D chart on the screen. Wingz, however, was faster than Excel and Full Impact in converting a bar chart to a pie chart with 200 data points.

Of the five chart-capable programs, Works has the least sophisticated charting function. The entire chart is defined

with the Chart command dialog box: You define the data series, choose the chart type (there are four types plus one combination type), and format the legends, titles, axes, scale, grid, and labels. There is a separate dialog box for pie charts. Works seems to be missing some chart pieces, and it's harder to put together the pieces that you do have.

Presentation features: The influence of desktop publishing is evident in the latest advance in spreadsheet integration. With Full Impact, Ragtime 2, Trapeze, Wingz, and Works, it is possible to put spreadsheet data, charts, graphics, and text together on a single page for display or printing. Excel's and MacCalc's worksheets can't contain any graphic information, and, as in Works, Excel's worksheets can have only a single font designation (though cells can have bold or italic styles).

Ragtime 2 requires that you import the charts from an application like Cricket Graph (also from Cricket Software), and Works requires that all the pieces be put together in its word-processing module. Neither of these programs offers complete integration, because neither allows automatic updating of data and charts.

Top speed (mph)

Flathead 6

On the other hand, Ragtime 2, with integrated page processing, has the most advanced layout tools. Page processing integrated with a spreadsheet may seem like an unlikely combination - offering the ability to format the placement of spreadsheets within a report while retaining the ability to update them dynamically - but it's a powerful concept.

Frames are the basic Ragtime 2 pagelayout tool, and spreadsheets are one of the frame types along with text or picture frames. You can create, size, move, copy, or delete frames anywhere on the page.

Spreadsheet Comparison

Like other page-layout programs, Ragtime 2 has tools that enable you to precisely control the placement of elements on the page.

Even though the spreadsheet dimensions in Ragtime 2 are relatively small, you can link multiple spreadsheets in a single document. Within the spreadsheet frame, there is full typographic control of individual cells and characters. This is the same control that you get from Ragtime's integrated word processor and that you

expect (but don't always get) from all Macintosh programs.

Additionally, Ragtime 2 can create what it calls "tear-off forms," Essentially, documents saved as forms can be opened and modified without changing the original form. This makes it possible for an art department to create a form, put it on a file server, and let the company's users fill it out.

Trapeze's blocks have the same layout flexibility as Ragtime 2's frames, but Trapeze lacks rulers and guide lines for precision placement of blocks on the page. Trapeze block types include text, numeric, database, chart, picture, and graphics, but the graphics blocks do not have the flexibility of the MacDraw-like tools in other programs. You can format text by character within text blocks and by cell within database blocks, but other block types can have only a single format definition. Lastly, blocks can be made transparent, so that elements can be built

Different Sheets On-Line



When is a spreadsheet not a spreadsheet? When it's a statistics package, data-acquisition software, a database-management system, or other data-analysis package. Developers have adopted the well-known row-and-column user interface to get numbers into programs that do

other things altogether.

Abacus Concepts of Berkeley, Calif., is currently working on what appears to be a major upgrade to Statview II, its top-of-the-line color statistical analysis and graphics package. According to company officials, version 2.0 (due to ship in late spring) has about 25 percent more features than version 1.03.

Statview II uses the spreadsheet format to enter data, perform statistical analysis, and produce color graphs. It has more statistical functions and charts than a spreadsheet but includes common features such as data links to charts. It also contains some nice drawing and page-layout tools to customize charts.

Abacus says the key new features will make Statview more powerful than a spreadsheet. Among these are the formula capabilities, such as built-in conditional IF/THEN statements. Another spreadsheetlike feature will be the ability to add functions, much as other programs add macros. But unlike a spreadsheet macro, the new Statview feature is more complex and is actually a compiled language, as is Wingz. In fact, both Wingz and version 2.0 of Statview II blur the boundary between what is and isn't a spreadsheet package.

The new version of Statview will add more database-management features, such as data partitioning, to a list that already includes sorting. A new Do It command allows for batch processing of parts of your data. Graphics enhancements include multiple views of data sets and the ability to create graphic templates.

To keep the price down for those who don't need every feature, Abacus will offer some of the new features in the form of add-on modules.

On another data front is Parameter Manager Plus, from Rebus Development Corp. of Santa Clara, Calif. This is a powerful data-analysis tool used in data acquisition and statistical process control applications, such as monitoring temperature or studying the stock market.

Parameter Manager Plus' strength is that it enables you to organize a jumbled mess of numbers gathered from test equipment or on-line information services into a database structure that makes sense. The spreadsheetlike worksheet is used to enter or import

data, or you can collect data real-time with the program's RS-232 module, pmTALK.

Imported data automatically forms a date- or time-stamped database that is set up in a spreadsheetlike format. Each column of the worksheet contains one type of data, and each row contains values at a point in time. Analysis of the data can then be automated. Your options include ten statistical and other functions, production of a variety of charts and graphs, prediction of trends, and report and presentation generation. You can also attach MacDraw documents to files as reference figures for the on-line user or as inclusions in a report.

The Statistical Process Control capability lets you know whether a process is statistically in or out of control by the use of standard control charts. Other analysis functions produce histograms; trend and forecast plots; statistics charts of median, average, standard deviation, and the like; a chart that compresses time and presents highs and lows like a newspaper's stock market chart; and a correlation chart indicating coefficients and covariances.

A Calculated Parameter defines a measured parameter in your database as a function of other measured data and puts it into a formula. This feature finds the best curve (and its equation) for your plot of parameter versus parameter; you choose the equation types (such as exponential, linear, and so on), and one curve for each type is plotted. A Forecast command predicts when a value in a graph will exceed a certain level or give you the values at a certain time in the future, based on a best-fit curve.

Another would-be spreadsheet is Panorama, "the database that thinks it's a spreadsheet," from ProVUE Development Corp. of Huntington Beach, Calif. The program's strong points are its spreadsheetlike row-and-column display, data analysis, and the creation of business charts. Data entry is semiautomatic with a feature called Clairvoyance: Panorama guesses what you are entering from the first few letters entered in the field. Clairvoyance is especially helpful for repetitive data-entry tasks.

Users can also design color forms using a variety of MacDraw-like drawing tools. In addition, Panorama gives you outlining features, allowing you to expand or contract outlines to various levels of detail. And pictures can be imported into a field, or a Flash Art gallery of pictures and names can be created. Instead of pasting art into each record, this memory-saving device lets you type in the name of the picture to have it displayed.

Finally, Panorama also features macros, password protection, and use of the Mac II's 68881 math coprocessor. — John Rizzo

Table 1: Spreadsheet Features Compared

Features	Excel	Full Impact	MacCalc	Ragtime 2	fi₌✓	₩orks	D23 Lotus 1-2-3 **	BETA Wingz beta
roduros	Exect	Tun impact	maccaic	magnine 2	парого	WUINS	Lotus 1-2-5	willyz beta
Price	\$395	\$395	\$139	\$395	\$295	\$295	\$495	\$399
MultiFinder memory	640K	1 Mb	384K	800K	512K	768K	N/A	1 Mb
Minimum Mac	512KE	Plus	all	Plus	Plus	Plus	N/A	Plus
Spreadsheet								
Number of built-in functions	131	89	51	71	144	64	103	146 5
Maximum memory used	1 Mb	16 Mb	RAM	RAM	8 Mb	RAM	256K	RAM
Arrays and matrices	yes	no	no	no	yes	по	по	yes
Background calculation	yes	no	no	no	yes	yes	yes	yes
File/cell protection	yes	password	password	no	yes	по	yes	yes
Cell notations	no	yes	yes	no	yes	yes	yes	yes
Island selection	yes	yes	yes	no	yes!	по	yes	yes
Database management								
Integrated database	yes	yes	no	no	yes	yes a	yes	yes
Sort levels	3	2.048	3	3	3	3	22	56
Lock fields	yes	yes	yes	no	yes	no	no	yes
Macros								
Macro editor	yes	yes	no	no	no	по	yes	yes
Macro language	yes	yes	no	no	no	no	no	yes-
Macro recorder	yes	yes	no	no	no	yes	no	yes
Definable functions	yes	yes	no	no	no	no	add-in	yes
Custom menus/dialog boxes	yes	no *	no	no	no	по	yes	yes
State of the state	1						100	7
Graphics/presentation		170%	7725			60		1/247
Variable row height	no	yes	yes	yes	yes	no	no	yes
Number of chart types	7	7	0	0	10	5	7	20
3-D charts	no	по	no	no	no	по	no	yes
Chart rotation	no	no	no	no oec	110	no	no	yes 46 million (
Number of colors	8	8	1	256	8	8	6	16 million *
Mix data/graphics/text on page	no	yes	no	yes	yes	yes	add-in	yes
Multiple fonts per worksheet	no	yes	yes	yes	yes	NO	no	yes
Import scanned images	no	yes	no	yes	yes	yes **	no	yes
Drawing tools	no	yes	no	yes	no	yes	no	yes
Reduce/enlarge views	yes	yes	no	yes	yes	yes	yes	yes
Built-in display data formats	RAM limited	44 8 w/ 8 views	9	12 15	25 32	17 14	10	14 RAM limited
Number of documents open	HAW IIIIIled	o w/ o views	1	15	32	14		naw iiiiilet
File compatibility			1020427	- 20	data ant	- 30	042	0.00
WKS/WK1	yes	yes	yes/no	no	data only	по	yes	yes
SYLK	yes	yes	yes	yes	no	yes	yes	read only
DIF	no	yes	no	no	no	по	yes	yes
PICT	no	import	no	yes	yes	yes	no	yes
dBASE II, III	no	yes	no	no	no	no	yes	no

^{*} However, you can create icons to execute macros and dialog boxes.

[†] This is true of blocks but not of cells within blocks.

[§] Wingz also has 159 built-in HyperScript functions.

⁻ Wingz includes a complete programming language.

^{*} This applies when a 24-bit monitor and video card are used.

⁹ Works' database is a separate application, not part of the spreadsheet.

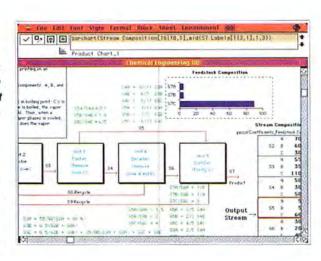
^{**} This applies only in Word Processor mode.

¹¹ Lotus 1-2-3, Release 2.01, was tested on a Compaq 286 with 640K RAM.

Trapeze 2.1

A chemical-engineering problem is represented on this Trapeze worksheet. Each element — such as the text in the upper-left corner, the graph at the top, or the table at the right is created as a separate block.

> Access Technology, Inc. 200 G Heritage Harbor Monterey, CA 93940-2483 (408) 648-4000 \$295



up in layers. This is especially useful for customizing charts.

Full Impact and Wingz have charts and graphics that exist in a layer separate from the spreadsheet. Like Trapeze's blocks, this makes it possible to juxtapose or layer data and graphics. The drawing palettes include familiar line, rectangle, and circle tools, and there are menu commands with dialog boxes to set line and fill attributes. In fact, integrating all applications into the same page is a logical and powerful development. It gives these two programs a big advantage over Excel, which has no drawing tools and can't display charts with data except in separate windows. Unfortunately, neither Full Impact nor Wingz has realized the full potential of this capability.

Although both Full Impact and Wingz can format text at the cell level, which should satisfy some needs for fancy formatting, neither can format every character. In addition, like Trapeze, neither Full Impact nor Wingz has any of the tools necessary to precisely place elements on a page, such as rulers and grids oriented to the page rather than the worksheet. Full Impact has a Page Preview command, but it allows you to place only headers and footers. Adding the element of the printed page to these two programs would not require a huge effort from Ashton-Tate or Informix Software, and it would add an extra dimension to their programs' capabilities.

Both Wingz and Works have drawing palettes that include tools similar to those of MacDraw. You can draw, fill, and edit structured drawings that exist as a layer above the spreadsheet. Works' palette is available in all four of its applications.

Excel, Full Impact, Ragtime 2, Trapeze, Wingz, and Works can all reduce and enlarge the spreadsheet, which makes it easier to view a multi-element spreadsheet on a small screen. Full Impact can actually save different views of the same spreadsheet. For instance, you could define views of several parts of the spreadsheet and choose a predefined view instead of scrolling all the way to the corners of rows and columns.

Database management: Spreadsheets are a natural tool for creating databases: Each row is a new record and each column is a different field. When using a spreadsheet as a database, you can store large amounts of information as discrete entities. Then, using the spreadsheet database functions, you can summarize the information on different fields or select records based on various conditions.

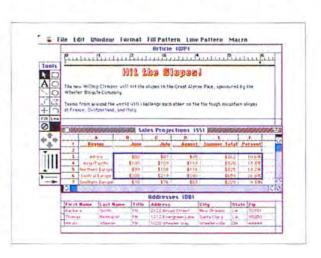
For testing, we set up a database of 2,000 records and 10 fields on a 1-megabyte Macintosh SE. Excel was the best performer on the SE. Full Impact and Wingz could not run the test database on the SE. On a 4-megabyte Mac II, however, Wingz was clearly the top per-

To create and use a database, Excel,

Microsoft Works 2.0

Microsoft Works' spreadsheet may be opened simultaneously with other Works modules (not shown here is the communications module). Data can be pasted between modules using the Clipboard. Works 2.0 also has a drawing palette that can be applied to each appropriate module.

> Microsoft Corp. 16011 N.E. 36th Way Redmond, WA 98033 (206) 882-8080 \$295



The Data Basin: How to Build a Database



Of the seven programs tested, only MacCalc and Ragtime 2 have no database capabilities. Here are five ways to create a database from your spreadsheet.

Excel and Full Impact use the same method for specifying a database: named ranges (the

range is the set of data you want to work with). With Excel you select the range of data plus field names and execute the Set Database command. (A field is a category of data, such as Customers, Price, or Telephone Number.) This names the range Database, and any database commands look for this named range. (There are several templates available to make Excel databases easier to use.)

With Full Impact, any named range can be a database. This means you can have multiple databases in a single spreadsheet. It also means there are fewer commands to clutter the menu bars. To specify selection criteria, you copy the database's field names to a second range. In Excel, you use the Set Criteria command to name the range. Full Impact can use any named range, with a slight difference: The field names are not part of the database or criteria ranges. Instead, Full Impact looks to the row above or to the left of the designated ranges for field names. The criteria range can contain

one or multiple criteria, and they can be matching (city="Palo Alto") or comparison criteria (population<100,000). Note that field names are part of the selection criteria. It is possible to use wild-card characters in text fields and to join criteria with ands and ors.

Excel has commands to Find, Extract, and Delete. By contrast, Full Impact has only an Extract command. To extract records in Full Impact, you need to copy the field name to yet a third range, but it need not be named or a set. With the extract range selected, you execute the Extract command, and records matching the criteria are copied to the new range.

Wingz's database looks similar to that of Excel or Full Impact but works a little differently: There are no named ranges. You use Set commands to specify the database and criteria ranges. As in Excel, there can be only one of each, but because there is no named range, it is impossible to know what range has been set in previous sessions. You inevitably end up setting the ranges again just to make sure.

Again like Excel, Wingz has Find, Extract, and Delete commands. However, the criteria are set up as formulas using the cell reference of the first row of the database: (= A2 = "Palo Alto"). This will evaluate to true or false and display a 1 or a 0. It is logical but less intuitive.

If you're ambitious, you could completely rewrite Wingz database commands using HyperScript. You might even be able to sell your scripts.

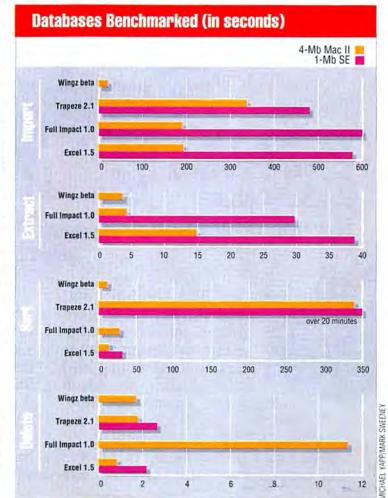
Common database tasks were tested on a 1-megabyte SE and a 4-megabyte II. The database consisted of six fields (columns) and 2,000 records (rows) of random numbers and letters. While Excel was the only program able to perform the test on a database this size on the SE, Wingz was overall the fastest program on the Mac II. Works' database is really a separate application, but Works' integration makes it easy to put a spreadsheet database into the application. Cut data from the spreadsheet to the Clipboard. Open a database document and paste data from the Clipboard to the database. Works' database is similar to other stand-alone filers — not at all like spreadsheet databases.

Trapeze has a database block type with special properties. You can mix data types, number or text, and you can change formats within the block. Trapeze automatically assumes the first row to be field names and adds them to the list of names in the menu.

Any Trapeze function can be used on a database block to create a new block. So instead of designating a criteria range, you create a table block with a formula that uses the database block as one of its arguments. This is essentially the same as an extract in other programs. Trapeze also has a number of block-manipulation functions that can be used to rearrange database blocks.

Blocks turn out to be more flexible as databases than the range methods used in other spreadsheet programs. It is easy to add or delete records, and you don't have to worry about corrupting your database by inserting or deleting a row or column in the wrong place.

- Clay Andres



First QMS gave you PostScript printing in color.

Now it's certified by Pantone, Inc.

PANTONE

PANTO

NTON

PANTONE

PANTONE

PANTONE



When the QMS ColorScript 100
was introduced, it gave
desktop publishers, graphic
artists and designers what
they had been waiting for—
color printing for Adobe
PostScript* applications. Now,

PostScript applications. Now, Pantone, Inc. has certified that our printer is PANTONE** Color Capable.

QMS and Pantone developed process color combinations for the ColorScript 100 PANTONE PANTONE

PANTONE

PANTONE

PANTONE

PANTONE

PANTONE

PANTONE

PANTONE

NTONE°

PANTONE

PANTONE &

PANTONE

very closely simulate all colors in the PANTONE MATCHING

SYSTEM 747XR, except for metallics and fluorescents. So the color you want is the color you get.

Even commercial printing proofs and inhouse color separations can be produced with your QMS ColorScript 100. For both flat and four-color process printing. For a fraction of the time and cost of conventional methods.

The printer has the advantage of a 68020-based Atlas controller running at 16 MHz, so you can see your results faster. You can print an 8½"x11" page in just under one minute. An 11"x17" page in just under two. And the quality is excellent. The ColorScript 100 uses a thermal transfer process that produces true 300x300-dot-per-inch resolution.

New Model 20—more affordable and upgradable

The original ColorScript 100 is the Model 30, with 8 megabytes of memory, a 20-MB hard disk built in, and the ability to print up to 11"x17" pages.

The new QMS ColorScript 100 Model 20 is more affordable. It has 4 MB of memory and the ability to handle letter-size (8½"x11")/A4-size paper. It provides the same high-quality output as the Model 30, and can be fully upgraded to a Model 30 when your needs expand.

PANTON

PANTONE

PANTONE'

PANTONE"

ANTONE

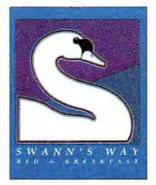
Compatibility is built in

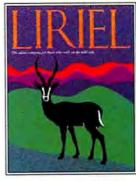
Both models of the ColorScript 100 connect with Macintosh, IBM, Compaq and other compatible PC's, along with minicomputers, workstations and mainframes. So your whole network can output in beautiful, accurate color. Using any of dozens of color-compatible applications.

The ColorScript 100 is yet another solution from QMS. Solutions that have made us a leader in imaging technology.

For more information on the QMS ColorScript 100, including a list of compatible

software and information on financing, call 1-800-631-2692, ext. 223.



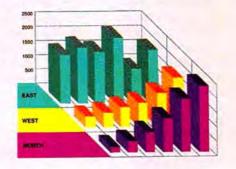


Pictured are just some of the ways designers are using the QMS ColorScript 100. The creative director at one design firm notes: "We're doing comps that used to

take hours in minutes.
The quality is fantastic."
A computer design system manager in the
Midwest says: "Our
clients are getting more
options, in less time, at
lower costs."



SALES FORECAST





Please circle 191 on reader service card.

Spreadsheet Comparison

Full Impact, and Wingz use similar techniques. You define ranges on the worksheet to be the database, the criteria range, and if needed, the destination range for extracted records. Excel and Full Impact use named ranges, and Excel simply reserves the names database and criteria for databases. Full Impact's database command lets you supply any named range as the database or set the criteria that make it possible to have multiple databases in a single document. Wingz has Set commands that designate the database ranges without naming them. Unfortunately, there is no way to show what ranges have been previously set, so you end up just setting them again.

To find or extract records in spreadsheet databases, you must define certain criteria. These criteria can be comparison values, like a name or letter (wild-card characters can be used), or logical formulas that must evaluate to true or false (such as salary + commission $\geq 30,000$). Generally speaking, the Find command highlights those records within the database that match the criteria, the Extract command copies records to the destination range, and the Delete command removes matching records from the database. (By contrast, Full Impact has only an Extract command.) You can also derive various statistics based on the database using built-in functions.

Trapeze has a database block rather than a defined range. The advantage is that the block size can change without requiring you to redefine the database range. However, there are no database commands, only functions, so any selection or rearrangement of the data results in the creation of a new block. Instead of defining criteria and destination ranges, Trapeze uses database functions to create new blocks from the database.

Works is the only other program with a database, but it is a separate application, not part of the spreadsheet. Spreadsheet and database windows can be open simultaneously, but there are no dynamic links. Data must be moved between applications manually. Works' database is a full-fledged filer with data-entry windows and report-defining functions.

Sorting is usually considered an integral part of database management, and all seven programs tested include a Sort command. Excel, MacCalc, Ragtime 2, Trapeze, and Works can all sort up or down on three different key fields. Full Impact has unlimited sorting controlled from a dialog box that lists all fields and allows you to designate sort order and precedence. Wingz uses Set commands that require you to pull down the menu to set the sort range and each key field, and to perform the sort. You can have unlimited key fields, but as with the database commands, there is no way to show previous selections.

Macros: Most of these spreadsheet programs are sufficiently powerful and general enough to be used for many vertical applications like accounting, property management, or inventory. These

are applications that have well-defined procedures for maintaining accurate records and for automating routines.

Excel, Full Impact, Wingz, and Works can record lengthy and repetitive tasks and play them back automatically. It's like writing your own commands. These custom commands are generally referred to as macros, although Wingz uses the term scripts.

In these programs, you can also write function macros that return a value. They work just like built-in functions. In Excel, almost any formula or series of formulas can be turned into a function macro by clicking the function button when you name the macro worksheet. Thereafter, anytime you use the name of an open function macro, it executes the specified formulas. Full Impact function macros are called from a cell by appending a number sign (#) to the macro name.

Trapeze comes with several examples on disk of macros created with thirdparty software: Apple's MacroMaker, Tempo II from Affinity Microsystems (Boulder, Colo.), and QuicKeys from CE Software (West Des Moines, Iowa). These programs can be used with most Mac applications. They are useful for automating functions but lack specialized features for spreadsheet programming.

Works' macros are created by turning on the macro recorder. Then any action, mouse click, keyboard action, or command selection is recorded in that macro file. Turnoff the recorder, name the macro, and anytime you execute the macro, the same actions will be repeated on the screen. You are not limited to the spreadsheet either. You could write a macro to cut data from a spreadsheet and paste it into a word-processing document. This

How the Spreadsheets Were Tested



Our benchmarks were created with the help of the developers of the seven spreadsheets we tested. Each test was conducted on a 1-megabyte SE and a 4-megabyte Mac II, both with standard

internal Apple hard drives. The tests were also conducted on spreadsheets of two sizes: 10 columns by 200 rows and 10 columns by 1,500 rows. The tests were run three times, and the results were averaged.

The Simple Recalc test is the most important, as it reflects the most common task of a spreadsheet user. The column A in each spreadsheet was created by entering 1.23 in the first cell, adding 1.1 to each successive cell down the column. Each of the nine remaining columns performed an arithmetic operation (addition, subtraction, multiplication, division, averaging) on the previous column. Once the spreadsheet was set up in this way, we changed the number in cell A1 to 3.21 and measured the time it took to recalculate.

In the Minimum Recalc test, we changed cell A150 by typing in the number 3.21 and measured the time it took to recalculate. The significance here is that the spreadsheet is recalculating a small area, which we call *minimum recalculation*. Spreadsheets that do not employ minimum recalculation must recalculate the entire spreadsheet whenever any changes are made on even a small portion.

In the Complex Recalc test, we created column A as before and performed the following math operations on each successive column: square root, modulus, sine, exponential, Boolean, logarithmic, standard deviation, an amortization schedule, and a date function. After we set up this test data, we changed cell A1 to 3.21 and timed how long it took for the spreadsheet to recalculate using the complex math functions. (For a complete description of the benchmark tests, contact Andrew Eisner at the MacUser Labs.)

— John Rizzo

Table 2: Benchmark Test Results (in seconds)

SE TEST RESULTS

1-Mb SE, 20-Mb h				3	A=		(DBS)	BETA!
	Excel	Full Impact	MacCalc	Ragtime 2	Trapeze	Works	Lotus 1-2-3 *	Wingz beta
Max size (cells)	52,437 (256 C x 204 R + 213)	524,288 (256 C x 2,048 R) ⁰	9,625 (125 C x 77 R)	28,387 (279 C x 101 R)	17,523 (99 C x 177 R)	22,092 (256 C x 86 R + 76)	13,060	16,384 (256 C x 64 R)
Simple recalc †	6.6/34.0	7.2/39.0	4.6/5	61.3/~	6.4/23.1	9.4/~	1.6/~	8.1/~
Minimum recalc	2.1/11.5	5.3/36.4	6.1/5	61.3/~	not defined	8.9/-	2.0/-	10.4/=
Complex recalc	16.4/108.2	15.7/110.6	16.3/5	118.1/-	37.5/250.1	37.4/~	1.4/-	19.8/-
Screen scroll	36.4/273.6	34.5/273.0	33.4/9	22.0/-	55.4/437.4	32.1/258.7	20.6/-	33.4/298.6
Insert column	17.9/110.2	23.8/180.0	5.0/5	76.2/~	no columns	29.5/-	1.8/~	24.5/-
Database **			N/A	N/A				
Import	574.2	3 hours +			480.8		100.9	*
Search	2.1	-						-
Sort	29.9				1,239.7			-
Add	1.9	-			2.6			-
Delete	2.1	-			2.6			
Extract	39.0	29.9						
Graphics								
Convert bar to pie	16.4	22.3						10.1

MAC II TEST RESULTS

4-Mb Mac II, 40-Mb hard disk, Apple color monitor

	X			73	A=		(D8S)	BETA!
Maximum size (cells)	54,589 (256 C x 213 R + 61)	524,288 (256 C x 2,048 R)°	124,875 (125 C x 999 R)°	64,009 (253 C x 253 R)	232,650 (99 C x 2,350 R)	201,357 (256 C x 786 R + 141)		252,672 (256 C x 987 R)
Simple recalc 1	3.2/11.5	3.6/13.8	2.3/5	18.5/144.5	2.5/4.9	4.1/16.2		1.9/5.7
Minimum recalc	1.0/4.0	2.0/10.2	2.7/5	17.9/144.1	not defined	2.9/15.5		2.7/12.3
Complex recalc	4.4/19.9	4.6/15.4	6.1/5	28.6/201.4	6.7/33.6	7.9/45.2		2.3/6.67
Screen scroll	46.7/387.3	42.0/320.6	39.0/5	13.2/*	48.6/379.8	26.3/203.1		37.8/290.6
Insert column	6.2/25.3	7.6/38.8	3.1/5	19.8/*	no columns	5.2/32.4		3.6/16.4
Database **			N/A	N/A				
Import	194.1	190.9			336.8	21.4		18.8
Search	1.1							1.2
Sort	11.8	28.1			344.6			8.5
Add	under 1	11.3			1.4			1.4
Delete	under 1	11.4			1.9			1.7
Extract	15.2	3.8						3.2
Graphics								
Convert bar to pie	8.8	11.86						5.9

C = column, R = row

^{*} Lotus 1-2-3, Release 2.01, was tested on a Compaq 286 with 640K RAM.

¹¹⁰ columns by 200 rows/1,500 rows.

⁻ Not enough memory was available to run the test database.

Filled sheet.

^{** 10} fields and 2,000 records.

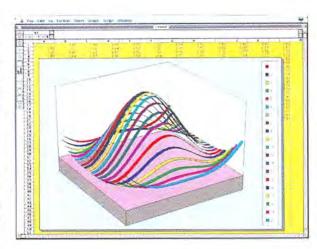
⁵ Can handle only 999 rows.

^{*}To create a 1,500-row spreadsheet in Ragtime, we had to link worksheets together, which prevented us from scrolling or inserting a column.

Wingz (beta)

Wingz is the only program with 3-D chart types. You can adjust the angle of the projection to suit the data and to prevent hiding data points. Wingz is also the only program to support the Mac's full color palette of 16.7 million colors.

> Informix Software, Inc. 16011 College Blvd. Lenexa, KS 66219 (913) 492-3800 \$399



way you could automatically update a regular weekly report by updating the data and invoking the macro. But there is no way to control the execution of macros by adding program loops or subroutines. Works has no macro language and no way to edit macros once they are created.

If you record a macro in Excel, Full Impact, or Wingz, it actually creates a document with your command steps translated into a macro language. Excel macro documents exist separately from spreadsheet documents and can therefore be used with any spreadsheet. Full Impact macros can be designated as global or local. Local macros are saved as part of the spreadsheet with which they were created, while global macros are saved in a special Full Impact Setting file and are available to any spreadsheet.

Excel macro documents look like spreadsheets — rows and columns of cells — and each macro command is in a different cell. There are commands to control branching and looping or to stop for user input. Excel's most powerful feature is the ability to write macros that customize the menu and create genuine Macintosh dialog boxes. This makes it possible to write custom applications with their own look rather than the look typical of Excel.

Part of the reason that Excel is able to dominate the spreadsheet market (and the same is true of 1-2-3 on the PC side) is that many third-party applications have been written using Excel's powerful macro capabilities. With a copy of Excel, you can easily and inexpensively buy income tax templates, structural analysis tools, or any number of specialized and otherwise costly applications.

Excel's macros, though capable, do not provide an elegant programming environment. Full Impact, on the other hand, has stepped out of the prison of rows and columns to create a Pascal or C-like language called Full Talk, complete with a modern editing window. You can assign variable names instead of using the range names that Excel requires, and Full Talk follows structured programming standards.

Full Impact macros open into a special, word processing—like window that pretty-prints the macro automatically. (Pretty-printing indents the macro commands according to the structure of the program and makes them much easier to write and debug.) There is also a command that checks the syntax of macros by finding and flagging incorrectly typed lines.

Since Full Impact includes drawing commands, you can control the screen's appearance with macros. You can't modify the menu bar, but you can create icons for macros and execute them from the icon bar. Full Impact can't create or modify Macintosh resources but can simulate the effect of buttons and dialog boxes.

Strictly speaking, even though Wingz appears to, it does not have macros. Instead, Wingz's HyperScript language is the basis of the entire application to which custom scripts can be added. Wingzcomes with two files called WZScript and DG, which are the scripts that contain all the menu commands and dialog boxes. This

is nonstandard Macintosh programming, but it is an innovation that could prove to be extremely powerful.

Since Wingz's user interface is built on HyperScript, and since Scripts are entirely modifiable by the user, you can edit the built-in Scripts and modify the Wingz user interface to make it look any way you want it to. Wingz technical support claims that you can make it look just like Excel or even 1-2-3. More practically, you could change all of the clumsy Set commands to dialog boxes. You can make Wingz applications that look and act just like Apple's HyperCard.

Scripts can be executed from the Script menu, can be added to the menus, or tied to a button on the spreadsheet and executed by clicking on the appropriate cell. These are not standard Macintosh resources, and as a result, dialog boxes look different from what you're used to. But this kind of innovative programming is exciting. There is still a need for a better Script editor, but HyperScript is a very powerful tool.

IN THE BALANCE SHEET

For many users, it is important to be able to import and export data to and from other programs. All of these programs can translate different data formats (see Table 1, "Spreadsheet Features Compared"), although Trapeze's unique block structure makes it the least capable in this area. As part of their challenge to Excel, Full Impact and Wingz should be able to read the Excel file format directly. Unfortunately, that's Microsoft's proprietary information, and it has not yet been

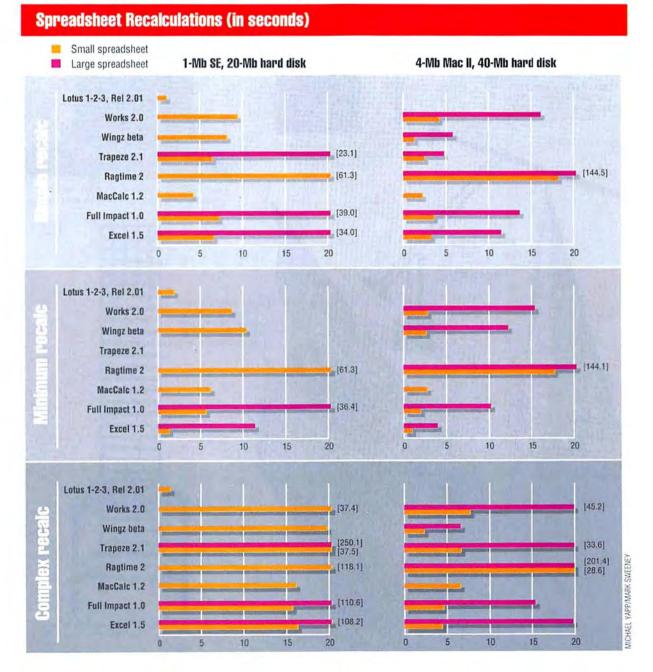
successfully reverse-engineered.

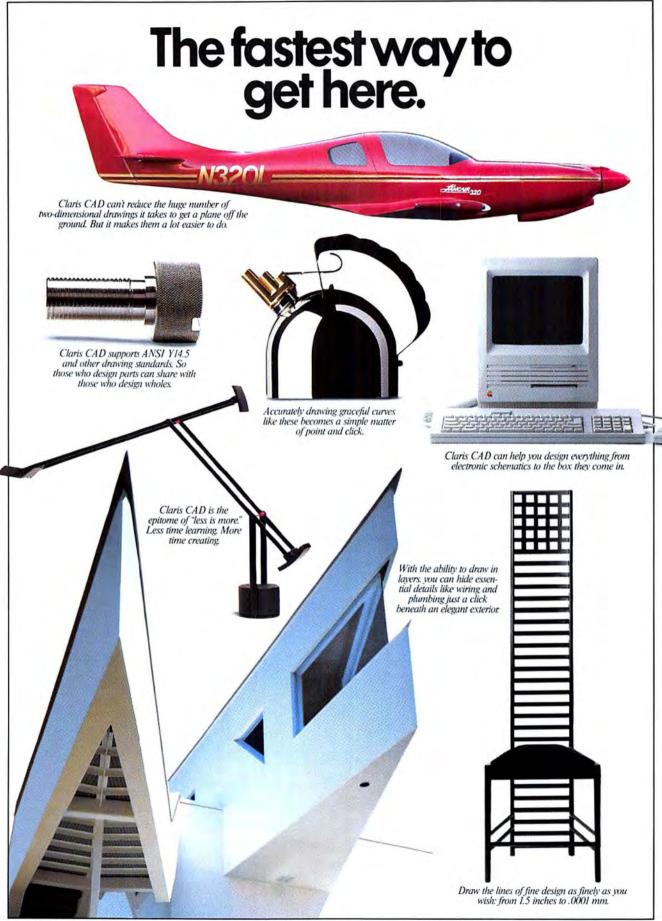
In the balance, what spreadsheet you ultimately go with will depend on your needs. People who need to perform diverse tasks on a random basis may want to go with Works for rough-and-ready integration. But for the occasional or basic user, MacCalc is also a good choice. The user interface is straightforward and easy to learn, and it includes some formatting

capabilities for creating attractive output. It is also faster than Excel for most of the operations we tested.

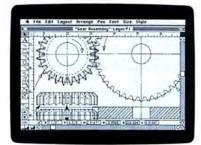
Ragtime 2 and Trapeze have an extra layer of structure to get through that is confusing at first. Ragtime's frames can obscure the actual spreadsheet, but once you become familiar with them, they work quite naturally. Ragtime is worth considering for desktop publishing. If Cricket could improve the program's slow performance, Ragtime could see a wider acceptance in this country.

Trapeze's blocks are unique, but it's the most difficult spreadsheet to learn. The current version comes with a newly written tutorial, but it still takes some time to be up and running — perhaps even longer for experienced spreadsheet users who have much to unlearn first.

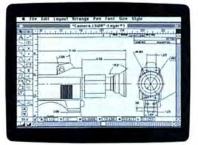




Is to start here.



Claris CAD is the first professional 2-D design and drafting tool to fully utilize the intuitive Macintosh way of working. So it takes hours to learn, not days.



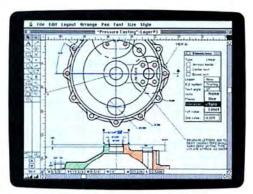
Fillets, tangents, keyboard entry, double lines and automatic dimensioning turn your ideas into realities with exacting precision.



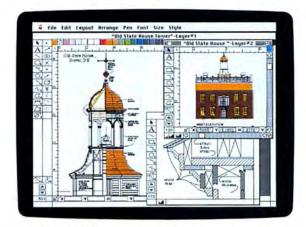
Customizable pens, dashed lines, hatch patterns and dimension appearance give you a new level of versatility.



Claris CAD makes it easier to sell your inspirations. Plot your plans, concept sketches, schematics and working drawings exactly as you see them, turn them into slides or overheads, or cut and paste them into proposals and reports.



Keeping the vision in your revisions is easy. Because you don't have to redraw from scratch.



Claris CAD integrates with other CAD software via optional IGES and DXF conversion programs. So you can move them to larger CAD/CAM systems for 3-D modeling and prototyping.



Here's the next step: order the Claris CAD Starter Kit, just \$29.95 (refundable when you buy the complete program). To order, call 800-628-2100. And see how intelligent design begets intelligent design.

Introducing Claris CAD. CLARIS



Spreadsheet Comparison

Blocks give Trapeze unique power, but this program is strictly for those who know how to use that power.

Users who like to incorporate databases in their spreadsheets will like Wingz's superior speed on a Mac II. Trapeze and Full Impact also have good database features, but Excel is still best at handling large databases on Macs with I megabyte of RAM. Excel also has powerful macros for the average user, though programmers may want to look at the higher level languages of Full Impact and Wingz.

Who's the winner in the spreadsheet battle for survival? If Full Impact cleans up its memory management or Wingz streamlines some of its overly complicated methods of operation, you'll see some serious species wars with Excel. What's really happening, though, is the diversification of the spreadsheet world, where ultimately no single species will conquer every other. And that's good news. In a food-chain simulation, when the sharks eat up all the tunas, they've made a meal of their own extinction.

CLAY ANDRES IS A FREE-LANCE WRITER AND PRESIDENT OF TERSE, A MACINTOSH CONSULTING AND DEVELOPMENT COMPANY IN PALO ALTO, CALIF.

Tester's Choice

There are seven good spreadsheet programs for the Macintosh. Here are the reasons to choose one over the other and all of them over Lotus 1-2-3:

Excel 1.5: Like 1-2-3, once the innovator, fast, and popular, with a new version promised for this spring. Its user interface is a little nonstandard and difficult to learn, and the program lacks good presentation tools. Most of Excel's features have been improved upon by other programs, but no single program is far ahead of Excel in toto. Excel's macro language is the only one that can create true Macintosh dialog boxes, and it's the only program with custom data formats. Version 2 will have better character formatting, but charts will still be separate documents, which requires an extra program to make a final presentation.

Excel is still a powerful program and a safe, conservative choice for all purposes except presentations, where it is surpassed by Ragtime 2, Full Impact, and Wingz.

Full Impact 1.0: Not as fast as Excel but with a much smoother user interface that includes customizable icon bars. It has a drawing layer over the spreadsheet that can include charts and fully formatted text. Full Impact uses virtual memory, which allows it to fill up its entire range of cells. However, it can use a large amount of disk space in the process, and saved files are approximately ten times bigger than with other programs. Full Impact's macro language, Full Talk, is by far the nicest to use. It lacks the ability to customize Macintosh resources, but it does everything else with ease and grace.

Full Impact provides the best tools for third-party developers. And if it weren't for its poor memory management, Full Impact would be the first choice for new spreadsheet buyers, since it is full-featured and powerful and can produce good presentations. But disk thrashing is a problem, and file sizes are large.

MacCalc 1.2: A spreadsheet for those who need a spreadsheet and nothing but a spreadsheet. MacCalc has no integrated applications but offers plenty of function in a simple program. It performs well, is easy to learn, and can make nice presentations of numbers.

MacCalc is the least expensive, and it's best for those with infrequent or very basic spreadsheet needs.

Ragtime 2: The only page-processing program with an integrated spreadsheet, Ragtime 2 is great at generating presentations, reports, and forms. The spreadsheet was much slower than the others we tested, so even though it is capable of complex and lengthy calculations, you may not want to wait. However, Ragtime 2 is the only program with the tools to position elements precisely on the page, format every character in every cell of the spreadsheet, and even kern text. There is no integrated charting, but Ragtime 2 can export data and import pictures from a charting program.

Ragtime 2 is the only program that can claim true desktoppresentation-quality output. Besides Wingz, Ragtime 2 has the best color support, but it needs better throughput in the spreadsheet.

Trapeze 2.1: The first spreadsheet program to integrate all elements on a single page. It's also unique among spreadsheets in method and design. Trapeze uses blocks instead of the standard rows and columns. Though difficult to learn, this program is powerful. It is the only program with *autosizing*: Instead of blocks remaining a fixed size like the range of a spreadsheet, they can grow or shrink to reflect changing results. Trapeze is fast on a Mac II but of only average speed on an SE.

Trapeze is best for power users with inherently complex models that require great precision, or with ongoing projects that require teamwork, frequent updates, or regular modifications. Because you proceed by naming each block you create, it's easy to go back at a later date and understand the structure you've created.

Wingz beta: Like Full Impact it has a drawing layer over the spreadsheet. Wingz is the only program with 3-D charts. The user interface was nonstandard and sometimes awkward in the beta version we saw, but it's completely modifiable. Wingz is built entirely on its own scripting language, HyperScript. Instead of writing macros, you add or modify scripts. If you don't like the Sort commands, change them. This flexibility makes Wingz potentially the most powerful program for creating vertical applications.

Wingz has good presentation features and is the only spreadsheet to support 16.7 million colors (24-bit). Wingz will be best for those who have the time and inclination to program their own custom environment. Otherwise, it will need to come with a choice of user scripts to help the masses and broaden its appeal.

Works 2.0: A spreadsheet integrated with word-processing, database manager, and communications applications. Works is capable of doing many things, but each module seems purposely crippled so as not to steal market share from Microsoft's more expensive programs. Still, it performs well in all tests and, because of its integrated applications, can be used in almost any situation.

Works is best for unsophisticated Macintosh users with multiple needs, though it is easy to outgrow any of Works' applications.

Lotus 1-2-3 (tested on a Compaq 286): Once an innovator, now a dinosaur. It's very fast and very popular but has been surpassed on all fronts for power, flexibility, and utility. Version 3 is promised for this spring with many new features, but 1-2-3 on the PC will still be a character-based (rather than graphic-based) program. Not much is known about Lotus' plans for 1-2-3 on the Mac except that they are working on it. Lotus 1-2-3 is not a good choice for anyone.

- Clay Andres

HyperCard.

HyperCard + Reports[™]...



The Proof is in the Printouts

Use *Reports* to Organize and Print HyperCard Data.

Don't let HyperCard limit you to just printing cards and stacks, columns and rows. Get *Reports*, the Complete Report Generator for HyperCard. With *Reports*, you can select whatever you want from your HyperCard data, then print it any way you want: reports and phone lists, invoices and checks, mailing labels, Rolodex® cards, summaries and much, much more. Organize and analyze information in thousands of ways, with 5 levels of sorts and breaks, 8 selection criteria, totals, subtotals, averages and other detail summaries. Design print-outs with pizzazz, using a custom layout editor with flexible formatting, variable fonts and character styles. Plus

graphics-paste in pictures from your HyperCard stacks, scrapbooks, or other applications, or use the built-in drawing tools.



With the easy-to-use layout editor in Reports, what you see is what you'll print.

Advanced Features

Card selection criteria includes <, >, =, \neq , contains, excludes, and more.

Sort on text, numbers, and dates.

Print multiple reports from one stack or one report from multiple stacks.

Chain reports for unattended printing.

Complete calculation capability.

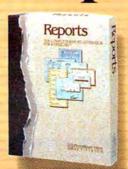
Includes *Preview*[™] for viewing formatted reports on screen (a \$29.95 value).

If you use HyperCard, you need Reports. It will turn your HyperCard data into useful information, any way you look at it.

How to order: Ask your retailer for *Reports* or, to order direct, call 800-345-2888, Operator 300. \$99.95 suggested retail price.

Please circle 132 on reader service card.

Reports



The Complete Report Generator for HyperCard

HYPERWARE FROM

© 1988 Activision, Inc., P.O. Box 7287, Mointain View, CA 94039. Reports and HYPERWARE are trademarks of Activision, Inc. Apple, HyperCard, and Macintosh are trademarks of Apple Computer. Inc. Rolodex is a registered trademark of Rolodex Corporation. Preview is a trademark of Software by Design.

HARD DRIVES









Three great names, one low price!

The BIGGEST name in low priced hard drives comes to MACINTOSH.™

HARD DRIVES International . . .

- Our Multi-Million Dollar buying power assures the lowest possible prices.
- Friendly, knowledgeable sales staff will help you choose the drives you need.
- Factory-trained technicians in our Technical Department can assist you with trouble-free installation and setup of your hard drive.
- Helpful Customer Service Representatives provide service after the sale.
- All products include a One Year Warranty and our 30-day "Worry-Free" Guarantee.

INTERNAL KITS FOR SE & II

20Mb MiniScribe	68ms	\$355	
30Mb Seagate	40ms	\$411	
45Mb MiniScribe	28ms	\$499	
80Mb Quantum	19ms	\$875	

INTERNAL KITS FOR MAC II ONLY

65Mb Seagate	40ms	\$ 529	
160Mb MiniScribe	17ms	\$1222	
340Mb MiniScribe	16ms	\$1955	

These complete internal drive kits include the drive, UniMac™ formatting & partitioning software, hardware mounting kit, all necessary cabling, and How-To manual.

EXTERNAL DRIVES FOR MACINTOSH PLUS, SE & II

20Mb MiniScribe	68ms	\$ 426
30Mb Seagate	40ms	\$ 479
45Mb MiniScribe	28ms	\$ 569
60Mb Seagate	40ms	\$ 589
80Mb Seagate	28ms	\$ 799
80Mb Quantum	19ms	\$ 955
160Mb MiniScribe	17ms	\$1275
340Mb MiniScribe	16ms	\$2075

External drives include drive, UniMac™ external case, power supply, cabling, formatting & partitioning software.







1912 W. 4th Street Tempe, Arizona 85281 (602) 967-7435

1-800-234-DISK

International Orders: (602) 967-7435

Phone Orders: 7am — 7pm Mon. — Fri. 10am — 4pm Sat. (MST)

Customer Service: 1-800-234-5197 TELEX: 405765



Never A Surcharge For MC and Visa

Price and availability subject to change. All items are new with manufacturer's warranty. 5% surcharge for American Express and COO orders. PV's accepted 2% 10 days, NET 20, subject to 5% surcharge. 30 days Guarantee conditions: shipping & handling charges not rehandable; product must be in original condition. Add £59 shipping for Overneas Military AFO FFO EXPRESS Delivery. Hard Drivers International is a division of Insight Distribution Network, Inc. MACNETOR is a regis-

MCU048



If for any reason, you are not completely satisfied with any product, simply return it for a prompt and courteous refund!

By John Rizzo and the MacUser **Labs Staff**





When purchasing, shipping, or moving expensive peripherals, take care to protect your investment. The options are legion; big bubbles or little? Clear or colored? Prepopped? This comprehensive lab report will help you wade through the alternatives.

ome computer products are exciting in concept but disappointing in use. But there is one so vital to the core of business activity that no company can survive without it. In fact, the entire electronics industry is based on this single commodity. What are we talking about? Bubblewrap. Here at MacUser Labs, we've tested all varieties of this valuable material to find which type stands up best. This lab report will attempt to unwrap the myth and help you find the bubblewrap solution to fit your needs. You'll find there are small bubbles, big bubbles, double bubbles too - black bubbles, pink bubbles, even ones with missing pops.

THE SPECS

Bubblewrap — or bubblepack, as it is

termed by industry insiders - comes in two basic formats: big bubbles and little bubbles. The standard specs (IEEE-3.14159265 and ANSI 123LETSROCK) are 1.25-inch diameter for big and 0.375inch diameter for small. Be sure your bubbles conform before making a purchasing decision.

THE HISTORY OF IT ALL

The humble beginnings of bubblepack date to the turn of the century, when a Swiss patent-office clerk, Albert Eyesty, discovered he could get away with popping inch-sized balloons at his desk. He also found that popping full-sized balloons woke up his boss in the next office. The new miniature balloons weren't as loud, but there were more of them, "It's all relative," he would say. This led to the

development of bubble mechanics in the 1920s, a highly complex system based on group theory and tensor analysis. Eyesty never completely accepted bubble mechanics - or the five-mouse rating that leading magazines of the era conferred upon the theory, leading to his oft-quoted remark that "God does not bestow mice."

World War II spawned new applications of bubble mechanics, leading to the splitting of the bubble atom and ultimately the B-bomb. Bomb production, however, came to a standstill when it was discovered that, although it produced an impressive noise, the bomb inflicted no damage whatsoever. As one contractor explained, "When we go to sell our bomb, the first question we'll be asked will not be 'Is it very loud?' " (Recently, however, there has been a resurgence of inter-

Figure 1: In terms of sound levels, big bubbles scored higher than small bubbles. While there are more bubbles per sheet of small bubblewrap, the total impact is no match for big bubbles. However, the Metallica concert charted even higher than the big bubbles, reaching No. 1 on last week's Billboard ratings.

est in the B-bomb among military strategists, owing to its high bang-for-the-buck yield.)

THE BENCHMARKS

We selected the most popular brands to test. For the first test we set up an 8-megabyte Mac IIx (23 pounds) with an 8-bit color video board (0.7 pound), a 150-megabyte hard disk (14 pounds), and an Ethernet card (1 pound), running System version 6.02 under MultiFinder (no extra weight). We then arranged to test the Macintosh on a level surface 6 feet above the bubblewrap sample lying on a concrete floor, and dropped the Mac onto the bubblewrap. The percentage of burst bubbles was then calculated for each sample.

This was repeated with a 21-inch largescreen color monitor and a full-page monochrome monitor. Fortunately, many of the bubblewrap packages we received came with monitors, so we had an adequate supply for our tests.

Our next test measured the acoustic output when the bubblewrap waveform is collapsed, or "popped." This is perhaps the most important benchmark to consider when making a bubble-buying decision, since it directly measures the most commonly used function of the product. Of course, small bubbles don't make as loud a noise as big bubbles, but there are more pops per cubic foot (ppcf) with small bubbles. This is an understandable trade-off, and the choice is left to the informed consumer.

Our final test was the most ambitious. To ascertain whether the manufacturers use up or down quarks in their materials, we brought several bubblewrap specimens to the Stanford Linear Accelerator Center (SLAC) in Palo Alto, Calif. There, a beam of high-energy electrons in a

VIII.

vacuum was pumped up with microwaves for a distance of two miles and smashed into the center of a bubble. Results were analyzed using standard bubble-chamber techniques.

THE RESULTS

Overall, small bubbles did better on the Drop test, with an average of 23.8 percent broken bubbles for the Mac II and 31.3 percent when dropping large-screen monitors (the rate was the same for monochrome and color). This higher bubble-casualty rate was due to the angular shape of the monitors and the shards of glass that tended to inflict more severe damage to the bubbles upon impact.

The Pop index for big bubbles was much greater, with rates of 34.2 percent and 41.1 percent. If you are dropping large objects onto your bubblewrap, small bubbles are clearly the best for you. Yes, the equipment tends to fare better when dropped on big bubblewrap, but it leaves you with fewer bubbles remaining to pop by hand, which is of more critical importance.

The sound of popping bubbles was, as expected, greater for big bubbles (see Figure 1.) But remember, the quieter small bubbles may be better adapted for your particular environment. The 3-D chart in Figure 2 summarizes the SLAC tests. Additional tests will be delayed until the melted plastic can be completely removed from the accelerator.

There was little performance difference between brands, so by all means, get the cheapest one. In fact, I have an uncle who can get it for you wholesale.

JOHN RIZZO IS MACUSER LABS' CHIEF BUBBLE SCI-ENTIST AND A FREQUENT CONTRIBUTOR TO THE INTER-NATIONAL JOURNAL OF QUANTUM PACKAGING. THE AU-THOR OFFERS HIS APOLOGIES TO THE PHYSICISTS AND BUBBLEHEADS AT THE STANFORD LINEAR ACCELERA-TOR CENTER.

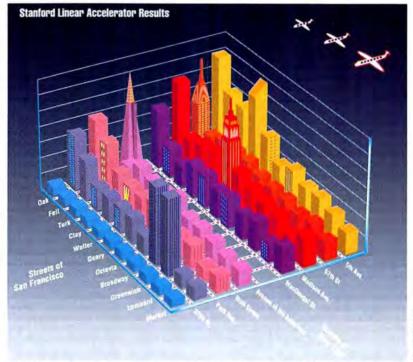


Figure 2: In this chart, the major axis indicates the performance of the big bubbles. The minor axis represents small-bubble performance. As you can see, more of the small bubbles remained intact after the accelerator tests, having avoided the tip of the Transamerica building.

HERE'S GRIPPING NEWS FOR MOUSE USERS

Introducing The Gravis MouseStick!™

A BETTER HANDLE ON DESIGN

THE PLAN: Create the input device that is the ultimate in controller precision and versatility.

THE STRATEGY: Combine design ergonomics with state-of-the-art controller technology.

THE RESULT: The Gravis Mouse -Stick". The breakthrough joystick controller technology ergonomically based on the hand's ability to perform precise movements with speed and accuracy.

A BETTER HANDLE

old hi-fi. The MouseStick's™ digital ON TECHNOLOGY optomechanics perform like a compact disk player. Design makes the MouseStick" And there's more responsive. the Gravis Mouse-Stick™ Processing Unit (GMPU). This little brain really frees you to select from hundreds of modes such as direct tracking with or without

Technology makes the Mouse-Stick" today's most versatile input device. For desktop use. For largescreen monitor CAD and DTP applications. And, of course, for computer games.

Plug it in and get ready! Everything opens up with an amazing 1200 point resolution that can be set to any screen size.

And the big picture resolves into fractional sensitivity modes for precise pixel by pixel control.

The secret? The MouseStick's™ true opto-mechanical digital output signal. Here's a comparison: available analog joysticks perform like an autocentering and fully variable pulse output. Three programmable microswitch buttons let you emulate keyboard commands, and the GMPU's 16-character display and menu system updates you on mode and function.

Thanks to the GMPU's 16K of ROM, programming options are virtually limitless and it can be user upgraded to include new features. The MouseStick™ is compatible with most popular mouse-based computers, has all the unique features of the Gravis Joystick and comes with a one year no-nonsense warranty!

SO TEST-DRIVE THE MOUSESTICK™ TODAY!

Get a grip on the new Mouse-Stick™ and you'll quickly discover it's light years ahead of the mouse, trackball or traditional joystick.

The MouseStick™ doesn't clutter your desk or require constant cleaning. And unlike a trackball, you don't need the dexterity of a cardshark to drag an item.

The Gravis MouseStick™ is one of the most technologically advanced and durable input devices available.

But don't worry. You can handle it.

Advanced

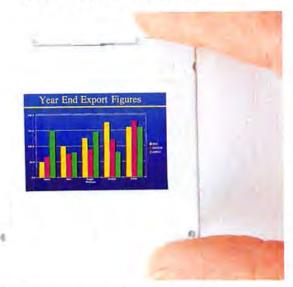
Computer Technology Ltd. 7033 Antrim Ave. Burnaby B.C. Canada V5I 4M5 US OFFICE: 1602 Carolina St. #D12, Bellingham WA 98226 Tel. 604-434-7274

Please circle 11 on reader service card.

Go from this...

to this...





OVERNIGHT!

It's easy with MAGICorp. If you use any of the graphics software listed here, you can have boardroom quality slides produced and delivered anywhere in the continental U.S. overnight!

Just transmit the data to us by modem toll-free! Our computers and \$250,000 cameras do the rest, creating superb 35mm slides, vastly superior to the images on your monitor. Our free communication software makes sending easy. And our Customer Support staff is ready to help you—before, during or after transmission—for perfect results every time. And at no additional cost.

The results look expensive, but they're not. Our prices start at just \$10.00 a slide! No wonder

we're Number One in Overnight Slides.

Call today for a MAGICorp Starter Kit at absolutely *no cost or obligation!* We'll also send information on our wide variety of other presentation media including overhead transparencies and color laser prints.

MAGICORP MAKES SLIDES FROM THESE SOFTWARE PACKAGES FOR MACINTOSH

- MacDraw® II
- More II
- · StandOut!
- · PowerPoint"



MAGICorp

OVERNIGHT SLIDES

60 EXECUTIVE BLVD. FLMSFORD NY 10523

Please circle 17 on reader service card.

2 can



vou cai

"Clearly in a class by itself."

That's how MACazine judged the MAC-101, our advanced keyboard for the Macintosh."

It's not hard to see why.

With the MAC-101, you can work the same fast, simple way

But MAC-101 can find them a real job. By using our MasterStrokes enhancement software to assign them dozens of mouse or keyboard commands.

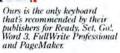
Even functions that would otherwise need numerous keystrokes—

"Superb."

That's how PC Magazine sizes up the MAC-101. While MacWEEK calls it "the most important accelerator you can buy for a Macintosh."

You can buy it for under \$195—

software included. And since it carries a two-year warranty, you'll be enhancing your piece of mind right along with



FULLWRITE

your Mac. So call

800/826-5398 (in California 800/ 592-9602) and find out where you can lay your hands on the MAC-101.

Once you do, you won't let go.



The MAC-101 lets you execute program commands with a keystroke-without having to reach for the mouse.

your mouse works—without leaving your keyboard.

And turn functionless function keys into a major resource.

It's the only keyboard that works with every model Macintosh.

It's also the only one Microsoft® recommends for Word 3.

The only one Aldus recommends for PageMaker.

The only one Ashton-Tate recommends for FullWrite Professional.

And the only one Letraset recommends for Ready, Set, Go!~

Function is as function does.

Since the function keys on an Apple Extended Keyboard don't relate to most Macintosh software, their only real function is to take up space.

or mousestrokes-can now be assigned to just one key.

Feeling is believing.

Obviously the MAC-101 is great news for every Mac user.

But for IBM types who are feeling their way around on the Mac, the news is even greater.

Because our keyboard is laid out in a standard configuration that's identical to the IBM PC.

Which means that anyone who's used to an AT or PS/2-or a Selectric, for that matter-will instantly know the MAC-101 like the back of their hand.

And type on it accurately, with the confident touch that comes only from tactile, positive-response keys.

Please circle 138 on reader service card.



All individual trademarks and copyrights are acknowledged.

Over The Years, We've Developed The Best Image In Monitors.







Crystal View II for the Macintosh II. 19-inch. Resolution: 1152 x 864.

Ultra Vision 1000, 19-inchmulti-sync. Macintosh II compatible and up to 1600 x 1200 resolution.

Crystal View SE for the Macintosh SE 19-inch. Resolution: 1152 x 864.

We made the first RGB monitor for Apple* computers. And the only 19-inch, multi-sync monitor to meet both Apple and IBM* standards.

Now, we have a family of highresolution, monochrome and color monitors for the Macintosh.*

The 19-inch Crystal View II for the Macintosh II. A high-resolution, monochrome monitor that handles larger spreadsheets, two 8½" x 11" pages, or B-size CAD drawings without shrinking or scrolling. It also comes with software that lets you toggle between applications such as Multifinder, Excel, and Hypercard. And it has our unique Vision Enhancement Filter that eliminates glare and increases contrast 1600%.

For the Macintosh SE, we have the 19-inch Crystal View SE. A highresolution, monochrome system with all the features of the Crystal View II.

Next, the Ultra Vision 1000. A

19-inch high-resolution, multi-scanning color monitor that gives you the widest frequency range of any monitor its size. And supports the highest resolution third-party graphics boards, as well as the standard Macintosh II resolution. Ultra Vision 1000 also features our exclusive Dynamic Beam Focusing to eliminate distortion and maintain precise focus to the corners.

PRODUCT	CAD/CAM/CAE	Presentation Graphics	Desk Top Publishing	Word Processing Spread Sheet
Ultra Vision 1000	V	~	V	1
Crystal View SE			V	V
Crystal View II	V		V	V

There's more. With everything from 12-inch monochrome to 19-inch high-resolution, color monitors, what you see here is only part of what we offer.

Regardless of which Taxan monitors you choose, ours not only *look* better, they make you *feel* better with special non-glare filtering, superior brightness, and focus across the entire screen.

That's important. OSHA found that 91% of the people using computer displays suffer from eye strain. And state and local governments are responding with new work rules. With Taxan, the leader in meeting these new health requirements, you're already protected.

So call 800-544-3888 for sales information and your nearest authorized Taxan dealer. Taxan USA Corporation, 161 Nortech Parkway, San Jose, CA 95134, (408) 946-3400.

See why, in Apple monitors, one brand is visibly better.



Please circle 96 on reader service card.

Taxan is a registered trademark of Taxan USA Corporation. Apple and Macintosh are registered trademarks and Hypercard and Multifinder are trademarks of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation. Excel is a trademark of Microsoft Corporation. Illustration created with Adobe Illustrator 88. Courtesy of Adobe Systems. © Adobe Systems Incorporated. Second image courtesy of T/Maker, Inc.



EDITED BY
AILEEN ABERNATHY

What happens when you import the same illustration into different programs? For the answer, turn to "Graphic Examples," the follow-up to last month's tutorial on graphics formats. Desktop Reviews covers FontSizer, Interleaf Publisher 3.5, and DTP Advisor. Next month, desktop-publishing gurus Tony Bove and Cheryl Rhodes will offer some expert advice on how to handle complex graphics in page-layout programs.

Contents

Desktop Reviews



Graphic Examples

If you have a few tricks of the trade to share, send them to DTP, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404.

BETWEEN THE LINES

Tracing Forms

Intelligent auto-tracing has arrived, in the form of Adobe's Streamline. This impressive new program can auto-trace both scanned and bit-map-painted black-and-white images. It traces everything within a selected image, installing a minimal number of points along Bezier curves, which makes editing easier. Streamline also decides what to fill with black and what to leave white, so the finished product resembles line art. Most tracings can be used unretouched, exactly as created. Priced at \$395, Streamline is available from Adobe Systems at 1585 Charleston Road, P.O. Box 7900, Mountain View, CA 94039; (415) 961-4400.

■ Salvatore Parascandolo



Hell Graphic Systems has introduced ScriptMaster, a PostScriptcompatible interpreter that can transfer Encapsulated PostScript Format (EPSF) files from desktop-publishing systems to Hell's Chromacom family of electronic color prepress systems. Hell is the last of the big three in the high-end color prepress market to provide such an interface; Scitex and Crosfield announced similar interfaces last year ... Buoyed by the success of Studio/8, Electronic Arts has introduced Studio/1, a black-andwhite version of the popular color paint program ... Clip Art of the Month: Adobe Collector's Edition II (\$225) contains over 400 EPSF fill patterns and textures, including many standard architectural, mapmaking, and surveying designs that are editable in Illustrator 88 ... URW's entire font library - more than 2,000 faces in all - could be available as downloadable PostScript fonts by late

exactly am-

Auto-tracing reaches new heights with Adobe Streamline. At top is a 72-dots-per-inch bit-mapped image from Bubi-Click's MacTut clip-art collection. Below is Streamline's unretouched rendition of it, including automatic filling of black areas. By setting preferences, you can increase or decrease the level of captured detail.

1989, if the Font Company has its way. This new firm, based in Phoenix, has licensed the URW library and is marketing the fonts in packages of four for \$149. The company is also selling the fonts as EPSF outlines, which are editable in Illustrator 88 and FreeHand. Contact the Font Company at 4101 E. Larkspur Drive, Phoenix, AZ 85032; (602) 996-6606.

■ Aileen Abernathy

Shamrock's Orchard 20 MB Flexible Disk Drive

Finally! Fast, removable cartridge mass storage that doesn't cost as much as a computer.

Fast Five times the speed of floppy disks.

Secure Removable media can be locked away when security

requires it.

Flexible If your system is now floppy based, use it as a primary

storage device. If you already have a hard disk, use it as

a backup unit. You could also use it to archive those seldom used

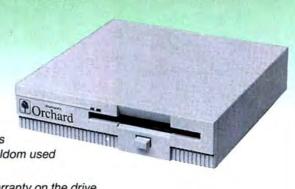
files now crowding your hard disk.

Reliable A lifetime warranty on the cartridges and a one year warranty on the drive

system assure trouble free performance.

High Each \$49 cartridge (four for \$179) stores 20 megabytes of data - the

Capacity equivalent of 26 double sided diskettes.



\$795

External 2400 Baud Modem

Anchor Automation 2400-Baud Modem

\$169

This is a complete communications package:

- Includes Quick Link Software and Modem Cable
- One year Warranty

Red Ryder Modem Software \$55

Mac SE/II Internal Hard Drives



20MB 38ms	\$379
30MB 38ms	\$399
47MB 38ms	\$499
62MB 38ms (MacII)	\$529
80MB 40ms (MacII)	\$699

- Includes Mounting bracket and cables
- Drives are Preformatted and Tested
- One year Warranty

■ Seagate

MacCrack Opens the Mac Plus & SE \$19

External Hard Disk Drives

Our External Chassis fits neatly underneath the Max Plus & SE and is only 2.25" high!



- Digital SCSI Address Switch
- Formatting Software included

Seagate

Drives are Preformatted & Tested

 20MB
 30MB
 47MB
 62MB
 80MB

 65ms
 30ms
 30ms
 40ms
 30ms

 \$499
 \$569
 \$669
 \$699
 \$879



733-AA Lakefield Rd., Dept. U, Westlake Village, CA 91361 To order, or get our free catalog, call





TOLL FREE 800-722-2898
California 805-373-7847
FAX 805-379-9345

- No extra for Visa/Mastercard (AMEX add 3%).
- Prices include UPS surface shipping.

Corporate & Institutional PO's accepted.

- Federal Express shipping just \$1.50 per pound.
- 30 Day Money Back Guarantee.
- Se Habla Espanol

Please circle 9 on reader service card.



DESKTOP **REVIEWS**

FontSizer

If you've ever used a headline or drop cap larger than 24 points, you're probably familiar with the limitations of the Mac's screen fonts. Since 24 points is the maximum size available for most Mac fonts, the computer builds larger letters by scaling up the available sizes. Jagged, distorted characters and poor spacing result. This lack of WYSIWYG can make fine-tuning text a vicious circle of haphazard screen adjustment, proof copies, and readjustments.

FontSizer to the rescue. This simple

utility from U.S. MicroLabs creates highquality screen fonts of any downloadable PostScript typeface in sizes of up to 127 points. On-screen the smooth, crisp type looks exactly as it does when printed. Precise character spacing ensures accurate headlines, drop caps, leading, and kerning. And FontSizer can create true bold, italic, and bold italic screen fonts, replacing the crude approximations normally used.

FontSizer performs these miracles by accessing the font information inside a PostScript printer. It downloads the selected font to the printer, sizes the characters, creates them in the printer's mem-

ory, and then sends the whole font back to your Mac as a Font/DA Mover file. FontSizer can create accurate screen images of specific styles like bold because the styles are separate typefaces within a PostScript printer. You can install the new screen fonts using version 3.8 (or later) of Font/DA Mover, or you can use them with a font enabler like Suitcase II or MasterJuggler.

FontSizer is simple to use, and the interface is intuitive. There is no

Cancel button, but Command-period works just fine. What this program isn't is fast. Fonts can take up to five minutes

to build in each size. Even the simplest fonts take a couple of minutes. That's not FontSizer's fault; it's the printer doing all that work that slows everything down. Although FontSizer works with all PostScript printers, the more RAM available for downloadable fonts, the better. When using a LaserWriter Plus, I could rarely build more

than a single large font at once. That was a trifle annoying but not a real problem.

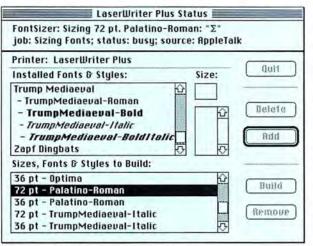
The fonts produced are everything you

could want: large and beautiful. The documentation says the new screen fonts can be used only with the Mac and printer that were used to create them, but the larger screen fonts can be very useful if you have an ImageWriter (which needs double-size fonts for best quality) or an ImageWriter LQ (which looks for triple-size fonts in Best mode). Generally, there's no other way to get such large fonts.

Besides creating new screen fonts, FontSizer can help clean up your font menus. Many font menus are cluttered by style variations — the font names preceded by B, I, and BI — of your downloadable fonts. FontSizer will delete the style variations after checking to be sure that the same font is available under the font family name. Although each font name must be manually selected and deleted, you can quickly clean up cluttered menus with this feature.

FontSizer is a simple program with a short, complete, and well-written manual. Because it performs a useful function well, FontSizer is sure to find a place on every serious desktop publisher's list of essential software.

Steven Bobker



To build new screen fonts with FontSizer, select the typeface from the scroll list at top, choose one of the preset sizes or type in your own, and click on Add. Then simply click on Build, sit back and relax.

Eurostile Eurostile

The bottom word is in 72-point Eurostile as scaled by the Mac from a 24-point version, the largest screen size normally available. At top, the same word is displayed using a FontSizer-created 72-point screen font.



FontSizer

\$\$\$\$1/2

List Price: \$99.95 Published by: U.S. MicroLabs, 1611 Headway Circle, Building #3, Austin, TX 78754; (512) 339-0001, (800) 552-7654

(orders only). Version: 1.7

Requires: Mac Plus, SE, II, or IIx; PostScript printer with PostScript version 38 or later (includes all Apple LaserWriters); downloadable PostScript fonts; Font/DA Mover version 3.8 or later. Compatibility: MultiFinder

friendly.

Application Size: 183K Copy Protection: None



Interleaf Publisher 3.5

When Interleaf Publisher was released last year, it was expected to be the ultimate page-layout and document-processing program in both price (\$2,495) and performance. Unfortunately, this Macintosh incarnation of a popular workstation program was severely handicapped by an unorthodox Mac interface, poor font management, and other minor shortcomings (see "A New Leaf," May '88). Interleaf's makers have addressed some of these problems in the recently released version 3.5. Regrettably, several of the so-called improvements will serve only to throw its failings into greater relief.

Although Interleaf Publisher superficially resembles, and has often been compared to, such DTP workhorses as PageMaker and Ready, Set, Go!, it's really a different beast. Interleaf's emphasis is on the entire document, not the page; on raw processing power - including automatic generation of indexes and tables of contents; CADlike drawing capabilities; anchored graphics; spellchecking; and multiuser support. Best of all, it sports incredible speed. You can reformat a 400-page document from a one-column layout to four columns in a matter of seconds. Try doing that in PageMaker. You'd need...well, we're talking Methuselah here.

Interleaf 3.5 still requires a Mac II with at least 5 megabytes of RAM and a hard disk, but only 9 megabytes of free disk space (instead of 14) are now required. The program and related files are compressed onto eleven 800K disks. After installation, which takes 15 to 20 minutes, you must delete all previously installed Courier fonts from your System file and replace them with substitutes included in the Interleaf package. This substitution is necessary because Interleaf's technicians detected FOND resource-management problems in the way Apple's Font/DA Mover deals with the original Courier fonts.

The new release supports both Multi-Finder and multiple monitors. Interleaf's

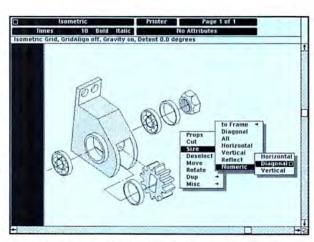
world is still black-andwhite, however - a major omission in a highend program when all of its less pricey competitors have jumped on the color bandwagon. In addition, Interleaf officially supports only Apple keyboards. If you depend on the Datadesk or Ehman keyboards, be forewarned: Interleaf doesn't guarantee compatibility. I had problems using Datadesk's MAC-101 extended keyboard while testing version 3.5.

Interleaf still balks at kerning, but font management has opened up somewhat. The program now supports Apple's Font Manager, allowing you to use any Post-Script font installed in your System. (Previously, only Interleaf's font manager and fonts could be used.) But there are two restrictions that highlight Interleaf's font shortcomings.

First, fonts not resident in the printer's ROM - such as Garamond, Franklin Gothic, or any font created with Fontographer - must be downloaded with a utility like Adobe's Downloader. Interleaf will not automatically download the fonts when you choose Print. Second. version 3.5 remaps the keyboard, as did its predecessor, so that part of Adobe's standard character set (all accented letters, for example) is inaccessible. Interleaf 3.5's ability to use downloadable fonts is indeed an improvement over 3.0's. but its halfhearted adoption of Apple's Font Manager is about as helpful as placing a Band-Aid over a gaping flesh wound.

Fortunately, you can now create superscripts and subscripts, and you're no longer restricted to 13 point sizes. You can now enter any point size from 3 to 150, and Interleaf will create a scaled screen font and temporarily add the point size to the Font Size submenu until shutdown

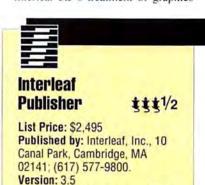
Another new feature converts text strings (text created in a graphic frame



What a CAD! Interleaf Publisher's built-in drawing capabilities rival those of dedicated CAD programs. The pop-up menus show some of the options.

with the command Control-O) into outline fonts that can be rotated, sized, stretched, or filled. Previously such display type had to be cut and pasted into Interleaf from supplied clip-art documents, one painful letter at a time. Now you can convert text into either Bitstream Serif or Sans Serif. This feature does not convert, let's say, Palatino into an outline form of Palatino. All typefaces — Times, Helvetica, Galliard, and so on — can be converted only into one of the two Bitstream outline fonts.

Interleaf 3.5's treatment of graphics



Requires: Mac II, 5 megabytes of

Application Size: 198K for main program; 8.5 megabytes (484

files) for complete installation.

Copy Protection: None

RAM, hard disk, PostScript

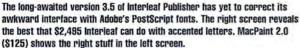
Compatibility: MultiFinder

printer.

friendly.

DESKTOP REVIEWS







remains essentially the same with one exception. When PICT files are imported, the software now creates a standard object-oriented graphic rather than a diagram (Interleaf's proprietary graphic format). This PICT graphic can be sized and moved but not edited. It can also be converted into an editable diagram.

The new release can convert documents into Printerleaf files, making it easier to share files with Interleaf users on other computers. Formerly, documents had to be transferred in ASCII format. Interleaf developed Printerleaf, its pagedescription language, with an eye on the PC View station.

Interleaf's Help function remains substandard compared with those of many other Mac applications. For a complex program whose gargantuan manuals span hundreds of pages, the 30-odd entries of the on-screen Help window simply don't cut the mustard. On the other hand, Interleaf's technical support continues to shine.

Interleaf 3.5's added features are definite improvements, and it's still the most powerful program of its kind on the Mac. Yet although Interleaf may be watered, for Mac aficionados it's still drooping.

■ Gregory Wasson

DTP Advisor

A successful desktop publisher must understand the world of printed communication. But mastering things like design and typography is of little use if you don't know how to make assignments, specify paper, and control delivery dates. If you're a budding publisher who needs some guidance in these areas, Broderbund's DTP Advisor could be just what you need.

DTP Advisor is an interactive set of HyperCard stacks that covers project planning and management, design, typography, art production, and printing. It answers questions ranging from "When should you use extra leading?" to "What are hickeys, and what do they tell you about a printer?" The program is essentially two applications in one. First, it's a

tutorial on the mechanics and management of publishing. Second, it helps you manage publishing projects with tracking forms and a database.

The tutorial is well designed and comprehensive. Most screens have multiple layers of information that are accessed by clicking on the graphics or text. Clicking on keywords (indicated by asterisks) brings up definitions from an extensive glossary. Clicking on graphics produces an explanation or, in some cases, an animated sequence that illustrates a concept like kerning or offset printing. Indeed, there are so many hidden goodies that DTP Advisor resembles a computerized treasure hunt.

The project-management portion of DTP Advisor contains eight printable forms for defining and scheduling projects, estimating costs, making free-lance assignments, and listing type and print specs. There's even a sketch pad with Paint-like tools for planning layouts. A database lets you store details on writers, photographers, artists, printers, or other vendors. This information is cross-referenced and serves as fodder for the forms, into which it can be automatically inserted.

DTP Advisor is beautifully designed, both in appearance and programming. Since everything is linked, you can hop from the tutorial on typography to the glossary for a definition or to the type specification form to record information for your next project. Moving to the project-management form, you can have the program search the database for a printer that suits your needs. If you forget what a term means, you can search the glossary or tutorial for it or add it to the glossary for future reference.

Broderbund has produced a tightly knit

Here today.

More than meets the eye • We carry 100's more products, call for latest price.

Accessories	
3m	
40 Meg Dc-2000 Tape Cartridge 23 Abaton	
Pro Point Adb (SE & II)	
Addison Wesley Inside Macintosh, Vol. 1-4 (Soft Back) 21.ea	
Inside Macintosh, Vol. 1-4 (Soft Back) 21.ea Inside Macintosh, Vol. 5 (Soft Back) 23	1
Acher Engineering	
Turbo Trackball Adb (SE & II)85	
Bantam Books	
Illustrator 88: Official Designers Handbook 19	
Complete Hypercard Handbook (2nd Ed.) 23	
Benko-Wren Macstation II Platinum	
Datadesk	2
Hyper Dialer 29	
Hyper Dialer	
Frontron	
Mactilt	
Mouse Cleaner 36012	
Golden Ribbons Imagewriter Ribbons -Black	
Kalmar Designs	
Teakwood Disk File Cab. (Holds 45 Disks) 19	
Teakwood Disk File Cab. (Holds 90 Disks) 29	
Kensington Microware	
System Saver Mac Fan68	
Turbo Mouse	
Kraft.	
Quickstick	
Mac Recorder	
Mac Packs Come in Gray Navy Wine	
Imagewriter Bag 49	
Mac Plus/SE Bag	
Mac SE Bag Xt (Extended Keyboard) 74	,
Mac Zone 7 Outlet Noise & Surge Protector24	
800k Disk Drive (Platinum) 189	
Mouse Pad Blue Gray Red 6.ea	à
Tool Kit Open Mac With Grounding Strap 20	
Msc	
A+ Mouse Adb (SE & II)	
A+ Mouse (512k & Plus) 65	-
Orange Micro Grappler Mac	
Grappler Mac Lq	ř
Grappler Mac Ls	Č
Scancolurn	
Mac Table With Cabinet450	
Smith & Bellows	
Diskette Chest - Mahogany (Holds 96 Disks) 35	
Sony Disks Double Sided - 10 Pack	
Double Sided - Bulk (Min Order 50) 1.65	-
Symmetry 1,03	-
Hyper DA	į

Aatrix	
Payroll 3.0198	3.
Payroll Plus	3.
Acius	
4th Dimension549	1
And Information Management	
Aec Information Management Aec Information Manager	
Aec Information Manager575).
Aegis Development	
Doug Clapp'S Word Tools 1.2 45	;
Ashton-Tate	•
Dbase Mac	,
Full Impact	
Full Write Professional	3.
Blyth Software	
Omnis 3+ & Express 3.3 (1-3 Users) . 395	1
Pontures Coffuses	
Bootware Software Resume Writer Pro	
	1.
Bravo	
Mac Calc78	3.
Caere	
Omni Page	
Dataviz	
Dataviz	
Mac Link Plus W/Cable	1.
Deneba Software	
Coach Professional).
Coach Thesaurus	
The Big Theu	
Clastrania Arts	11
Electronic Arts	
Thunder II48	3.
Fox Software	
Foxbase+/Mac	1
Foxbase+/Mac Multi User359	1
Envhace: Mac Run Time (Helman Heres) 200	
Foxbase+/Mac Run Time (Unlimited Users) 298	
Freesoft	3.
	3.
Freesoft Red Ryder 10.3	3.
Freesoft Red Ryder 10.3	3.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 95	3.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit .99	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 95 Intuit Quicken 32	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meea 32).).
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meea 32).).
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128	3. 5. 9.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128	3. 5. 9.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .126 TENpoint0 Focal Point II .126	3. 5. 9.
Freesoft Red Ryder 10.3 56 Hayes Smartcorn II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 128 Reports 68	3. 5. 9.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .68	3. 3. 3.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 128 Reports 68 Micro Lytics Gofer 44	3. 3. 3. 3.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .68	3. 3. 3. 3.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 128 Reports 68 Micro Lytics Gofer 44 Word Finder 34	3. 3. 3. 3.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .69 Gofer .44 Word Finder .34 Microsoft .44	3. i.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .69 Gofer .44 Word Finder .34 Microsoft .259 Excel 1.5 .259	3. i.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .68 Gofer .44 Word Finder .34 Microsoft Excel 1.5 .259 File 2.0 .149	3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 68 Micro Lytics 60fer 44 Word Finder 34 40 Microsoft Excel 1.5 259 File 2.0 145 Word 3.02 255	3. 5. 5. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 68 Micro Lytics 60fer 44 Word Finder 34 34 Microsoft Excel 1.5 259 File 2.0 145 Word 3.02 255 Works 2.0 205	3. 3. 3. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 68 Micro Lytics 60fer 44 Word Finder 34 40 Microsoft Excel 1.5 259 File 2.0 145 Word 3.02 255	3. 3. 3. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 68 Micro Lytics 60fer 44 Word Finder 34 34 Microsoft Excel 1.5 259 File 2.0 145 Word 3.02 255 Works 2.0 205	3. 3. 3. 3. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 128 Reports 68 Micro Lytics Gofer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram 115	3. i.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .68 Gofer .44 Word Finder .34 Microsoft .255 Excel 1.5 .255 File 2.0 .145 Word 3.02 .255 Works 2.0 .205 Write .115 Monogram Dollars & Sense 4.0 .80	3. i.
Freesoft Red Ryder 10.3 .56 Hayes Smartcom II .99 Intuit Quicken .32 Meca Managing Your Money .128 TENpoint0 Focal Point II .128 Reports .68 Micro Lytics .68 Gofer .44 Word Finder .34 Microsoft .255 Excel 1.5 .255 File 2.0 .145 Word 3.02 .255 Write .115 Monogram Dollars & Sense 4.0 .80 Business Sense .262	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 68 Micro Lyties 60fer 44 Word Finder 34 40 Microsoft Excel 1.5 255 File 2.0 145 40 Word 3.02 255 250 Write 115 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta 262	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 68 Focal Point II 128 86 Micro Lytics 66 44 Word Finder 34 34 Microsoft Excel 1.5 255 File 2.0 145 34 Word 3.02 255 32 Works 2.0 205 32 Write 115 115 Monogram 201 205 Doubla Helix Release 2 337	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 95 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 128 128 Focal Point II 128 128 Reports 68 Micro Lytics Gofer 44 Word Finder 34 Microsoft Excel 1.5 259 File 2.0 145 149 Word 3.02 259 259 Write 119 Monogram Dollars & Sense 4.0 80 80 Business Sense 262 20 Odesta Double Helix Release 2 337 Olduvai Software 37 37	3. i.
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 126 Reports 68 Micro Lytics 60fer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta Double Helix Release 2 337 Olduvai Software Read-II! 199	3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 126 Reports 68 Micro Lytics 60fer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta Double Helix Release 2 337 Olduvai Software Read-II! 199	3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 126 Reports 68 Micro Lytics 60fer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta Double Helix Release 2 337 Olduvai Software Read-II! 199 Read-II! Ts 79	3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 95 Intuit Quicken 32 Meca Managing Your Money 126 Feoal Point II 128 Reports 66 Micro Lytics 66 Gofer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta Double Helix Release 2 337 Olduvai Software Read-It! 199 Read-It! Ts 75 Paragon Courseware	
Freesoft Red Ryder 10.3 56 Hayes Smartcom II 99 Intuit Quicken 32 Meca Managing Your Money 128 TENpoint0 Focal Point II 126 Reports 68 Micro Lytics 60fer 44 Word Finder 34 Microsoft Excel 1.5 255 File 2.0 145 Word 3.02 255 Works 2.0 205 Write 115 Monogram Dollars & Sense 4.0 80 Business Sense 262 Odesta Double Helix Release 2 337 Olduvai Software Read-II! 199 Read-II! Ts 79	

Business

Preferred Publishers	
Dalabase	Cal
Softview	
Macintax Federal 88	64
Software Discoveries	
Record Holder Plus	44
Software Ventures	
Microphone 1.5	. 109
Microphone II	221
Mac Money 3.0	64
Symantec	
Macsqz 1.5	49
More İl	249
T/Maker Write Now 2.0	Call
Traveling Software	. Call
Traveling Software Lap-Link Mac V.2.0	89
Wordnerfact Corn	
Wordperfect	189
Graphics	
40420 M. H. H	
3g Graphics Business 1	65
Business 1	58
Δldue	
Freehand 2.0	. 445
Pagemaker 3.0	510
Cricket Software	Udi
Cricket Draw	.168
Cricket Graph	.118
Cricket Paint	. 118
Cricket Presents Pict-O-Graph	104
Deneha Software	
Canvas 2.0	. 168
Dubl-Click Software	
Wetpaint Classic Clip Art • For Publishing •	
Animal Kingdom • Special Occassion	ns
Printer'S Helper . Industrial Revolut	ion
Old Earth Almanac • Island Life	. 43.ea
World Class Fonts Vol 1 & 2 (The Original)	12
Vol 3 & 4 (The Stylish)	43
Vol 5 & 6 (The Giants)	43
Electronic Arts	
Studio Eight	.319
Comic People (Vol.1 Office Days)	25
Comic Strip Factory	40
Innovative Data Design	
Dreams	. 298
Macdraft 1.2b	149
Laserware	250
Laserpaint Color II	
Image Studio	.299
Letra Studio	.327
Ready, Set, Go 4.5	. 289
Ready, Set, Show Letra Fonts (Postscript)	. 189
conditions (Fusiscript)	. Udil

Video Works II Hypercard Driver
Microsoft
Power Point 2.0
Laser Fx
Shana Enterprises
Fast Forms Construction Kit
Silicon Beach Software
Digital Darkroom
Silicon Press
Super 3d (Enhanced)
Super Paint 2.0
Symmetry
Picture Base 1,2 & Pb Retriever
T/Maker Click Art Business Images
Click Art Christian Images
Eps Illustrations
Deskpaint V.2.0
Educational
Borland Eureka: The Solver
Bright Star Technology
Alphabet Blocks (Reg. 1mb)
Talking Tiles (Req. 1mb)
BrØderbund
Type!
Kids Time
Minderana
S.A.T./ Perfect Score
Nordic
Alphabetizer • Bodyworks • Clockwork Coinworks • Earthworks • Flashworks
Lemonade Stand • Naval Battle
Preschool Disk 1 • Preschool Disk 2
Word Search
The Learning Company
Reader Rabbit
Algebra . Arithmetic . Calculus
Discrete Mathematics . Pre-Calculus /
Trigonometry • Probability Theory Truestat
Truestat3
Games
Access Software
World Class Leader Board
Accolade
4th & Inches
Hardball
Activision Universal Military Simulator
Brøderbund
Ancient Art Of War

Ancient Art Of War At Sea Autoduel

Shufflepuck Cafe ...

Bullseye Software

Ferrari Grand Prix .

Discovery Software

Chessmaster 2000 ...

P-51 Mustang Flight Simulator

Chuck Yeager'S Advanced Flight Trainer

Moebius

Arkanoid **Electronic Arts**

Macromind

Video Works II

Our phone lines are open for orders Monday - Friday: 6AM to 8PM PST Saturday: 7AM to 5PM PST Saturday: Our Customer Service line is open Monday - Friday: 8AM to 4PM PST We accept VISA, MASTERCARD AMERICAN EXPRESS & Optima Card No surcharge added.







* All prices subject to change · All items subject to availability



There tomorrow.

\$3 Overnight shipping on all orders • We ship and deliver on Saturdays

Languages

Ерух	
Sub Battle	.31.
Greene Inc Crystal Quest 2.2	26.
Infinity	
Go • Grand Slam Tennis	27.ea
Quarterstaff (Requires 1 Megabyte)	.35.
Mediagenic	
Might & Magic	24
Microprose	
Pirates!	
Microsoft Flight Simulator	.36
Miles Computing Fool's Errand	
Fool's Errand Harrier Strike Mission II	.35.
Mindscane	
Aussie Joker Poker	34
Balance Of Power (1990 Edition)	30
Colony • Crossword Magic	20 00
Doin Viv	20.00
Deja Vu Deja Vu II (Lost In Las Vegas)	.30.
Deja vu II (Lost in Las Vegas)	.32.
Shadowgate	.30.
Trust And Betrayal	.30.
Uninvited	.30.
PBI Software	
Strategic Conquest Plus	34
PCAI	.04.
FUAL Description	20
Lunar Rescue	.30.
Mac Courses	. 28.
Mac Golf	.35.
Mac Racquetball (Req. 1mb)	.36.
Road Racer	39
Silicon Beach Software	
Anacha Strika	
Apacine office and a second	27
Payand Dark Cartle	.27.
Apache Strike Beyond Dark Castle	.27.
Dark Castle	.27.
Sir Tech	.27.
Dark Castle	.27.
Sir Tech Wizardry Sphere	.40.
Sir Tech Wizardry Sphere	.40.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4	.40.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter	.40.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109	.40.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale	.27. .40. .28. .28. .32. .21.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version)	.27. .40. .28. .28. .32. .21. .25.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version)	.27. .40. .28. .28. .32. .21. .25.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Telfris (Plus, SE & II) (B & W Version) Spinnaker	.27. .40. .28. .28. .32. .21. .25. .22.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, St. & II) (B & W Version) Spinnaker Saroon IV	.27. .40. .28. .28. .32. .21. .25. .22.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation	. 27. . 40. . 28. . 28. . 32. . 21. . 25. . 22.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation Nfl Challenge	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation Nfl Challenge	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation Nfl Challenge	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, St. & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware	.27. .40. .28. .32. .21. .25. .22. .30. .59. .30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, St. & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware	.27. .40. .28. .32. .21. .25. .22. .30. .59. .30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W. Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS	.27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W. Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS	.27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20	.27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, St. & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30	.27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, St. & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 30 Macstack 43	.27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4. Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 43 Macstack 60	.27. .40. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785. .785.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4. Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 43 Macstack 60	.27. .40. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785. .785.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modem CMS Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 43 Macstack 60 Platinum 170 Tapestack 60mb Scsi Tape Backup	.27. .40. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785. .785.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 60 Platinum 170 Tapestack 60mb Scsi Tape Backup CMS (Mac II Internal)	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30. . 59. . 30. . 59. . 625. . 785. . 785. . 785. . 725.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4 Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 60 Platinum 170 Tapestack 60mb Scsi Tape Backup CMS (Mac II Internal) Platinum 90 II/I	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30. . 59. . 30. . 398. . 529. . 625. . 785. . 890. . 725. . 725.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4. Orbiter Pt 109 Solitaire Royale Tetris (Mac II Internal) Pro CMS (Mac II Internal) Patenament II only (Dalor Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 40 Platinum 170 Tapestack 60mb Scsi Tape Backup CMS (Mac II Internal) Platinum 90 II/I	. 27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785. .890. .725.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4. Orbiter Pt 109 Solitaire Royale Tetris (Mac II Only) (Color Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 40 Platinum 170 Tapestack 60mb Scsi Tape Backup CMS (Mac II Internal) Platinum 90 II/I Platinum 90 II/I Platinum 170 II/I Pro 60 II/I	. 27. .40. .28. .28. .32. .21. .25. .22. .30. .59. .30. .398. .529. .625. .785. .890. .725.
Dark Castle Sir Tech Wizardry Sphere Gato 1.4. Orbiter Pt 109 Solitaire Royale Tetris (Mac II Internal) Pro CMS (Mac II Internal) Patenament II only (Dalor Version) Tetris (Plus, SE & II) (B & W Version) Spinnaker Sargon IV Xor Corporation NII Challenge Pro Challenge Hardware Abaton Interfax 12/48 Fax/Modern CMS Macstack 20 Macstack 30 Macstack 43 Macstack 43 Macstack 40 Platinum 170 Tapestack 60mb Scsi Tape Backup CMS (Mac II Internal) Platinum 90 II/I	. 27. . 40. . 28. . 32. . 21. . 25. . 22. . 30. . 59. . 30. . 398. . 529. . 625. . 785. . 890. 1695. . 725.

Pro 45-SE/R725.
Pro 102-SE/R
Connor
Zone 100-SE/II (Mac SE & II Internal) 1045.
Daystar Digital
Daystar 33/030 Accelerator II 4680.
Novy Systems
Novy Mac20mx-16mhz
Novy Mac20mx-25mhz
Dove
Macsnap 2SE (1mb To 2mb Upgr Mac SE) 439.
Macsnap 524 (512k To 1mb Upgrade) 312.
Macsnap 524E (512ke To 1mb Upgrade) 284.
Macsnap 524S (512ke To 1mb W/Scsi Port) . 378.
Macsnap 548 (512k To 2mb) 575. Macsnap 548E (512ke To 2mb) 539.
Macsnap 548E (512ke To 2mb) 539.
Macsnap 548S (512ke To 2mb W/Scsi Port) 598.
Marathon 020, Mse1 (Board Only) 584.
Marathon 020, Mse2 (Board & 1 Mb) 975. Marathon 020, Mse3 774.
Marathon 020, Mse4
Plus 2 (1mb To 2mb Upgrade - Mac Plus) 429.
Scsi Port Adapter
Epic
Epic 2400 Int. Mac II Modem315.
Everex
Emac 20d
Emac 40-Imp Plus Impact Series850.
Emac 60/60dtl Deluxe
Emac 60t Tape Back Up
Macintosh 2 One Meg Cmos Simms (Dip /100 Ns) . Call.
2 One Meg Simms (100 Ns) SM Call.
256k Simm Module (120 Ns) Call.
Megagraphics
2008 8 Bit Color Board For Mac II 1369.
Megascreen 19" Display
Megascreen 2001 B&W Board Kit Mac II 645.
Megascreen 2008 Color For Mac II 3945.
Megascreen II Kit For Mac 512/Plus 498.
Megascreen SE Kit
Motorola 68881 Math Co-ProcessorsCall
Nuvotech
Turbo Net St
Turbo Net
PLI
Infinity 40 Turbo Removable 1298.
Infinity 40/40 Turbo Removables 2195.
Seagate
Zone 30-SE/II (Mac SE & II Internal)
Zone 45-SE/II (Mac SE & II Internal) 599.
Zone 81-II (Mac II Internal)890.
Sharp Jx 450 Color Scanner5995.
Shiva Corporation
Netbridge
Netmodem V2400
Netserial X232
Stf Technologies
Fax Stf
Sunra Corn
Supra Modern 2400 Baud
Thunderware Thunderscan 4.0
munderscan 4.0

Borland	
Turbo Pascal 1.1	5.
Mainstay V.J.P. (Visual Interactive Programming)	0
Microsoft	
Quick Basic	9.
Paragon Courseware Qued-M 10:	_
Paragon Courseware Qued-M105 Symantec).
Just Enough Pascal	В.
Lightspeed C 3.0	7.
Lightspeed Pascal 2.0	7.
	q
True Basic	
3-D Graphics Toolkit49	9.
Business Graphics Toolkit	9.
Scientific Graphics Toolkit	0.
Zedcor Inc	
Zbasic 5.0	5.
Music	
Ars Nova Practica Musica 2.0	Q
Bonas Productions	
Country . String Quart Hvy. Met. 15.e	a
Studio Session49	9.
Super Studio Session	9,
BrØderbund Jam Session	0
Cada	
Mac Drums	3.
Electronic Arts Deluxe Music Construction Set 2.5 89	0
Great Wave Software	
Concertware + 4.0	9.
Concertware + Midi 4.0	8.
Impulse	-
Audio Digitizer	Э.
Professional Composer V.2.239	5
Professional Composer V.2.2399 Professional Performer V. 2.3.1329	5.
Passport Designs	
Master Tracks Jr	۷.
Notewriter19	9.
Passport Midi Interface9	7.
Resonate	_
Listen 2.0).
Utilites	
Affinity	
Tempo II	8.
Alsoft	
Disk Express	1
Master Juggler	3
Berkeley System Design	
Stepping Out 2.0	
Bright Star Technology Hyper Animator (Req. 1mb)	Ω
Tryper Animator (ned, 1110)	Ů.

Calendarmaker 3.0	Calendarmaker 3.0	.27.
Ouick Keys Ver. 1.1 54 Ouick Mail (10 Users) V2.0 174 Central Point Software 22 Copy II Mac (Version 7.2) 22 PC Tools Deluxe 48 Fifth Generation 48 Fast Back 53 Power Station V2.5 36 Suitcase 2.0 44 Greene Inc 0uickdex Ouickdex 32 Hjc Software Virex Virex 68 Mac Master Fedit+ Fedit+ 28 Microseeds Redux Redux 65 Olduval Software 29 Solutions Backfax Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Super Macro Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Superspool 5.0 55 Symmater 79 </td <td>Disktop 3.04 + Laserstatus & Widgits</td> <td>.27.</td>	Disktop 3.04 + Laserstatus & Widgits	.27.
Quick Mail (10 Users) V2.0 174 Central Point Software 22 Copy II Mac (Version 7.2) 22 PC Tools Deluxe 48 Fifth Generation 53 Fast Back 53 Power Station V2.5 36 Suitcase 2.0 44 Greene Inc 44 Quickdex 32 Hic Software 42 Virex 68 Mac Master 68 Fedit+ 28 Microseeds Redux Redux 65 Olduvai Software 29 Softview Mac In Use 2.0 45 Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Superspool 5.0 55 Symm	Quick Keys Ver. 1.1	.54.
Central Point Software Copy II Mac (Version 7.2) 22 PC Tools Deluxe 48 Fifth Generation Fast Back 53 Power Station V2.5 36 Suitcase 2.0 44 Greene Inc Quickdex 32 Hjc Software Virex 68 Mac Master Fedit 28 Microseeds Redux 65 Olduvai Software DA-Switcher 29 Softview Mac In Use 2.0 45 Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool 2.0 Single User 79 Superspool 5.0 55 Symantec S.U.M. (Symantec Utilities For Macintosh) 69 Symmetry Acta Advantage 75 Tops, Inc. Tops (Mac Version) Call Williams & Macias Labels, 216 (Laser version) 34 34 34 34 34 34 34 3	Quick Mail (10 Users) V2.0	174.
Fifth Generation Fast Back	Oneter Delet College	
Fifth Generation Fast Back	Copy II Mac (Version 7.2)	.22.
Fast Back 53. Power Station V2.5 36. Suitcase 2.0 44. Greene Inc Quickdex 32. Hic Software Virex 68. Mac Master Fedit+ 28. Microseeds Redux 65. Olduvai Software DA-Switcher 29. Softview Mac In Use 2.0 45. Solutions Backfax 139. Smartscrap & The Clipper 2.0 49. Super Glue 51. The Curator 79. Supermac Software Disk Fit 1.4 60. Network Disk Fit 245. Sentinel 149. Super Laser Spool - Multi User (1 To 5) 240. Super Laser Spool 2.0 - Single User 79. Superspool 5.0 55. Symantec S.U.M. (Symantec Utilities For Macintosh) 69. Symmetry Acta Advantage 75. Tops, Inc. Tops (Dos Version) Call. Tops (Dos Version) Call. Williams & Macias Labels, 216 (Laser Version) 34.	PC Tools Deluxe	. 48.
Power Station V2.5 36 Suitcase 2.0 44 44 Greene Inc Quickdex 32 44 Greene Inc Quickdex 32 44 Greene Inc Quickdex 32 45 68 Mac Master Fedit+ 28 Microseeds Redux 65 Olduvai Software DA-Switcher 29 Softview Mac In Use 2.0 45 Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Super Laser Spool 2.0 - Single User 79 Superspool 5.0 55 Symantec S.U.M. (Symantec Utilities For Macintosh) 69 Symmetry Acta Advantage 75 Tops, Inc. Tops (Dos Version) Call Tops (Mac Version) Call Williams & Macias Labels, 216 (Laserwriter) 20 My Disklabeler (Laser Version) 34 34 32 Milliams & Macias Labels, 216 (Laserwriter) 34 32 32 32 34 34 34 34	Fifth Generation	
Power Station V2.5 36 Suitcase 2.0 44 44 Greene Inc Quickdex 32 44 Greene Inc Quickdex 32 44 Greene Inc Quickdex 32 45 68 Mac Master Fedit+ 28 Microseeds Redux 65 Olduvai Software DA-Switcher 29 Softview Mac In Use 2.0 45 Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Super Laser Spool 2.0 - Single User 79 Superspool 5.0 55 Symantec S.U.M. (Symantec Utilities For Macintosh) 69 Symmetry Acta Advantage 75 Tops, Inc. Tops (Dos Version) Call Tops (Mac Version) Call Williams & Macias Labels, 216 (Laserwriter) 20 My Disklabeler (Laser Version) 34 34 32 Milliams & Macias Labels, 216 (Laserwriter) 34 32 32 32 34 34 34 34	Fast Back	.53.
Suitcase 2.0	Power Station V2.5	36.
Quickdex 32 Hjc Software Virex 68 Mac Master Fedit+ 28 Fedit+ 28 Microseeds Redux 65 Olduvai Software 29 DA-Switcher 29 Softview Mac In Use 2.0 45 Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Super Laser Spool 2.0 - Single User 79 Superspool 5.0 55 Symmetry Acta Advantage 75 Acta Advantage 75 Tops, Inc. Call Tops (Mac Version) Call Williams & Macias Labels, 216 (Laser version) 34 Williams & Macias Labels, 216 (Laser version) 34		
High Software Virex Color	Greene Inc	
High Software Virex Color	Quickdex	32
Virex 68. Mac Master Fedit+ 28. Microseeds Redux 65. Redux Oldware DA-Switcher 29. Sottview Mac In Use 2.0 45. Mac In Use 2.0 45. Solutions Backfax 139. Smartscrap & The Clipper 2.0 49. Super Glue 51. The Curator 79. Supermac Software Disk Fit 1.4 60. Network Disk Fit 245. Sentinel 149. Super Laser Spool - Multi User (1 To 5) 240. Super Laser Spool 2.0 - Single User 79. Superspool 5.0 55. Symantec S.U.M. (Symantec Utilities For Macintosh) 69. Symmetry Acta Advantage 75. Tops, Inc. Tops (Dos Version) Call. Tops (Dos Version) Call. Williams & Macias Labels, 216 (Laserwiter) 20. My Disklabeler (Laser Version) 34.	Ula Cathuana	
Fedit+ 28. Microseeds Redux 65. Olduvai Software DA-Switcher 29. Softview Mac In Use 2.0 45. Solutions Backfax 139. Smartscrap & The Clipper 2.0 49. Super Glue 51. The Curator 79. Supermac Software Disk Fit 1.4 60. Network Disk Fit 245. Sentinel 149. Super Laser Spool - Multi User (1 To 5) 240. Super Laser Spool 2.0 - Single User 79. Superspool 5.0 55. Symantec S.U.M. (Symantec Utilities For Macintosh) 69. Symmatery Acta Advantage 75. Tops, Inc. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laser Version) 34.	Virex	68
Fedit+	Mac Master	.00.
Microseeds Redux		28
Redux G55	Microcode	.20.
Diduvai Software	Raduv	65
DA-Switcher 29	Olduvai Software	.00.
Softview Mac In Use 2.0		20
Mac In Use 2.0 45. Solutions 139. Backfax 139. Smartscrap & The Clipper 2.0 49. Super Glue 51. The Curator 79. Supermac Software Disk Fit 1.4 60. Network Disk Fit 245. Sentinel 149. Super Laser Spool - Multi User (1 To 5) 240. Super Laser Spool 2.0 - Single User 79. Superspool 5.0 55. Symantec S.U.M. (symantec Utilities For Macintosh) 69. Symmetry Acta Advantage 75. Tops, Inc. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laser Version) 34. My Disklabeler (Laser Version) 34.		. 25.
Solutions Backfax 139 Smartscrap & The Clipper 2.0 49 Super Glue 51 The Curator 79 Supermac Software Disk Fit 1.4 60 Network Disk Fit 245 Sentinel 149 Super Laser Spool - Multi User (1 To 5) 240 Super Laser Spool 2.0 - Single User 79 Super Laser Spool 2.0 - Single User 79 Super Laser Spool 5.0 55 Symantec 55 Symantec 5 S.U.M. (Symantec Utilities For Macintosh) 69 Symmetry Acta Advantage 75 Tops (Inc. Tops (Dos Version) Call Tops (Mac Version) Call Williams & Macias Labels, 216 (Laserwriter) 20 My Disklabeler (Laser Version) 34		45
Backfax 139		.43.
Super Glue	Packfay	120
Super Glue	Smarteeran & The Clinner 2 0	109.
The Curator 79. Supermac Software Disk Fit 1.4	Super Clue	51
Supermac Software Disk Fit 1.4	The Curater	70
Disk Fit 1.4 .60. Network Disk Fit .245. Sentinel .149. Super Laser Spool - Multi User (1 To 5) .240. Super Laser Spool 2.0 - Single User .79. Superspool 5.0 .55. Symantec S.U.M. (Symantec Utilities For Macintosh) .69. Symmetry Acta Advantage .75. Tops, Inc.		, 19.
Network Disk Fit	Diel Cit 1	co
Sentine 149 Super Laser Spool - Multi User (1 To 5) 240 Super Laser Spool 2.0 - Single User 79 Superspool 5.0 55 Symantec S.U.M. (Symantec Utilities For Macintosh) 69 Symmetry Acta Advantage 75 Tops, Inc.	Notwork Dick Fit	.00.
Super Laser Spool - Multi User (1 To 5) 240. Super Laser Spool 2.0 - Single User 79. Superspool 5.0 55. Symantec S.U.M. (Symantec Utilities For Macintosh) 69. Symmetry Acta Advantage 75. Tops, Inc. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laser Version) 34.		
Super Laser Spool 2.0 - Single User		
Superspool 5.0	Super Laser Spool - Multi User (1 10 5)	70
Symantec 69. S.U.M. (Symantec Utilities For Macintosh) 69. Symmetry 75. Acta Advantage 75. Tops, Inc. Call. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserwriter) 20. My Disklabeler (Laser Version) 34.	Super Laser Spool 2.0 - Single User	. 79.
S.U.M. (Symantec Utilities For Macintosh) 69. Symmetry Acta Advantage75. Tops, Inc. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserverter) 20. My Disklabeler (Laser Version) 34.		. 55.
Symmetry Acta Advantage .75. Tops, Inc.	Symantec	co
Acta Advantage 75. Tops, Inc. Call. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserviter) 20. My Disklabeler (Laser Version) 34.		. 69.
Tops, Inc. Call. Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserverter) Labels, 216 (Laser Version) 34.	Symmetry	75
Tops (Dos Version) Call. Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserwriter) 20. My Disklabeler (Laser Version) 34.		. 15.
Tops (Mac Version) Call. Williams & Macias Labels, 216 (Laserwriter) 20. My Disklabeler (Laser Version) 34.	Tops, Inc.	
Williams & Macias Labels, 216 (Laserwriter) 20. My Disklabeler (Laser Version) 34.	Tops (Dos Version)	Call.
Labels, 216 (Laserwriter) 20. My Disklabeler (Laser Version) 34.	Tops (Mac Version)	Call.
My Disklabeler (Laser Version) 34.		-
	Labels, 216 (Laserwriter)	20.
My Disklabeler Color		
	My Disklabeler Color	.31.

CE Software

Ordering Information

- *If we must ship a partial order, we never charge treight on
- the shipments that complete the order (U.S. only).

 120 day limited warranty on all products.

 Personal and company checks under \$1,000 clear
- immediately.

 •Please allow one week for checks over \$1,000.

 •Fortune 1,000 and Government checks clear immediately.
- Promise 1,000 and overtinest checks that institute Purchase orders pay actual shipping charges by weight.
 No sales tax, except for WA residents add 8,1% to total including shipping.
 Loan drives subject to availability.
 Your credit card will not be charged until your products ship.

Shipping Information

 Federal Express overnight service \$3.00 order (software orders, Continental U.S. only). Hardware items over 4 lbs incur additional shipping charges. All shipments insured at

no extra cost.

•APO/FPO orders shipped 1st class mail, charged by weight. Overseas: We ship to any destination in the free World. We use the quickest and least expensive methods possible. Second day air service is available to most of Europe, Austra-

la. and Japan.

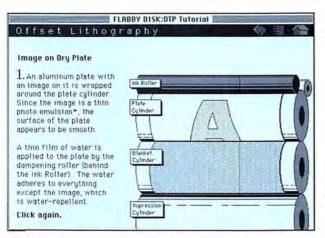
Software and hardware is subject to manufacturer's war-ranty. Defective items will be replaced immediately with like item. All opened software sales are final. Hardware and unopened software ordered by mistake is subject to a 20% restocking fee. Defective hardware replaced or repaired at our discretion

All returns must have an authorization number, call (206) 883-1975.

The MacZone is a trademark of Multiple Zones International 6825 176th Ave. N.E. Suite 100, Redmond, WA 98052







DTP Advisor walks you through all phases of publishing from planning to printing. Clicking on this graphic produces an animated sequence with accompanying text that illustrates the operation of an offset press. Clicking on the word *emulsion*, indicated by an asterisk (*), brings up its definition from the glossary.

program chock-full of useful information for the publishing neophyte. As might be expected, DTP Advisor is a heavyweight, tipping the scales at nearly 1.1 megabytes for its five stacks. By contrast, the manual is lean and mean, a mere 50 pages of instruction and helpful hints.

Unfortunately, most users would probably be served just as well

(and more cheaply) by a good book on the subject. Reading a book would be easier on the eyes than all the screen text, and you wouldn't have to flip back and forth between programs whenever you needed to know something. Even the forms and database have little practical value, serving mainly as checklists for beginners. You can't compare projects or costs onscreen or export the information to a spreadsheet program. Besides, many businesses have their own forms already. The database is basically another electronic Rolodex — and there are plenty of those already, including HyperCard itself.

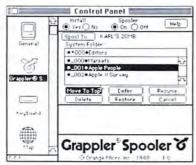
DTP Advisor also has some annoying qualities, including chimes that sound as you move from card to card (fortunately, they can be turned off). All the bite-sized chunks of information can be bewildering and tend to trivialize the subject, and the program's complexity is sometimes disorienting, making it easy to forget where you are and how to find what you want. There are also minor bugs, including disappearing text on the database

Grappler Spooler

PRINTING DOESN'T HAVE TO MEAN WAITING

Simply stated, a "spooler" allows you to simultaneously use your Mac while your printer is printing. No more waiting. You get more done, faster! Whether you have an ImageWriter II, ImageWriter LQ, or you're using any dot matrix printer

with the Grappler C/Mac/GS, the new Grappler Spooler lets your Mac do two jobs at once.



your Mac's control panel for easy access. You can queue up to as many print files as your disk will hold, and manage that queue with commands like Move To Top, Defer, Delete, Cancel and more. The Grappler

The Grappler

Spooler loads into

Spooler even works in MultiFinder.

Suggested Retail: \$79



Requires Mac Plus, SE, II or IIx with minimum 1MB of RAM. A hard disk is recommended. System 4.2 and Finder 6.0 or later is required.

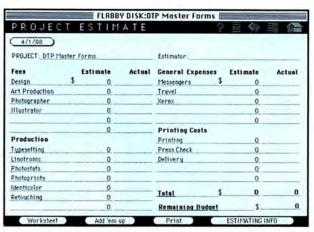
1400 N. Lakeview Ave., Anaheim, CA 92807 (800) 223-8029 (714) 779-2772

Please circle 16 on reader service card.

MOVING?

_	
	Please write to:
_	MacUser
-	P.O. Box 56986
	Boulder, Colorado
	80322-6986
-	Please include your
	mailing label from a
	recent issue of
_	MacUser for
	FASTER service.
	Allow up to 60 days
	for change of
	address to take
-	place.

DESKTOP **REVIEWS**



The forms provided with DTP Advisor help you keep track of publishing projects. You can fill in this form to estimate costs and then print the results, or you can return to the tutorial for more advice on estimating procedures.

cards, buttons that don't line up under glossary words, and strange screen effects when you play with the pattern tool in the sketch pad.

Still, DTP Advisor could be a useful companion for the novice publisher, although its claim of providing "a Ph.D. in DTP" is a bit farfetched. Even a seasoned publisher might learn a thing or two, and the interactive visuals

are something a book can't offer. If nothing else, the program is a brilliant example of HyperCard programming.

Paul M. Williams and Aileen Abernathy



DTP Advisor

ttt

List Price: \$79.95 Published by: Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101; (800) 527-6263 or (415) 492-3200.

Version: 1.0

Requires: 1 megabyte RAM; two 800K drives or hard disk (recommended); HyperCard 1.2 or later (included).

Compatibility: Mac II and MultiFinder friendly.

Application Size: 1,090K (five

stacks)

Copy Protection: None



Make a Key Move

...and create documents with impact using

KeyMaster.

Up till now, adding graphics to a document has required quite a bit of juggling with the clipboard and/or scrapbook. With KeyMaster you only have to cut and paste or import your artwork one last time. KeyMaster, from Altsys Corporation, creates high resolution PostScript® fonts from your artwork.

KeyMaster imports images in EPS format from Aldus® FreeHand™ and Adobe™ Illustrator™, and in PICT format from MacDraw®II, SuperPaint and other popular object oriented Macintosh® drawing programs. Each KeyMaster font supports up to 16 graphic characters.

Once an image has been imported, KeyMaster automatically creates

screen and PostScript font files which are easily added to your font menu. An integrated bitmap font editor allows you to touch up the screen fonts for optimum appearance. Your new KeyMaster font works just like any other font. Drawing and redrawing your artwork is now as easy as selecting a character.

In about five minutes, you can organize a library of drawings into a font ready for use in any Macintosh application. Company logos, symbols, signatures, and graphics can be used in line with regular text. With KeyMaster, access to your art is as close as a keystroke!

KeyMaster is brought to you by Altsys Corporation, the leader in font graphics design software. Altsys offers a sophisticated selection of fonts and font editing programs that allow you to easily design custom fonts and logos. You know our products: fomographer, fontable plus, faces. Aldus FreeHand, and now-keyMaster.

Now it's your turn to create an impact - with KeyMoster!



720 Avenue F. Suite 109 Plano. Texas 75074 (214) 424-4888

KeyMaster suggested retail price \$99.95

Tools of the Trade

QuarkXPress™ makes your
Macintosh a powerful design and
production system... with features and
capabilities that address the real-world
needs of today's graphic arts professional.

It's the right tool for anyone who cares about fine typography and layout accuracy. Such as support for global tracking in increments of 1/200 of an em space. Or leading that can be specified as precisely as 1/1000 of a point. In short, the kind of precision that designers have come to expect in excellent typesetting.

And when it's time to put your design on press, QuarkXPress makes your job easier. Because Version 2 now supports the PANTONE®* MATCHING SYSTEM and advanced color features. So moving your idea from tissue to mechanical art will take a little less time. And a lot less effort.

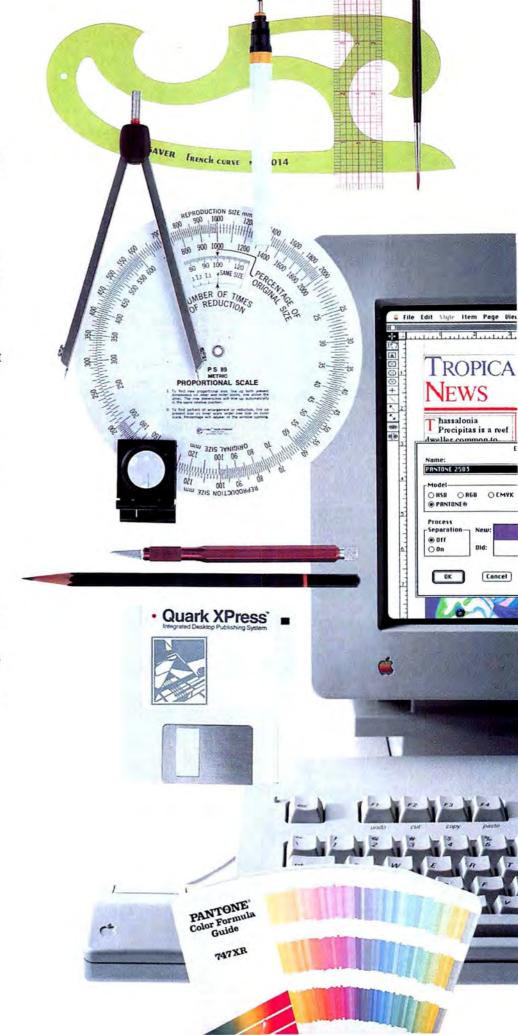
To learn more about QuarkXPress and see a demonstration, call 1-800-356-9363. Or see your authorized Quark dealer.



Quark and QuarkXPress are trademarks of Quark, Inc.

*PANTONE is a registered trademark of Pantone, Inc. Pantone Inc.'s check-standard trademark for color reproduction and color reproduction materials

Please circle 87 on reader service card.







Graphic Examples

What's black and white and color and gray and jagged and smooth? The same graphic imported into different applications!

Last month, we discussed the two basic kinds of Macintosh graphics and the formats in which they're stored ("Putting It Graphically," March '89).

Now let's see how some popular applications handle object and bit-mapped graphics when they're saved as paint, PICT, PICT2, or Encapsulated PostScript Format (EPSF) files. User manuals and simple import/export charts don't always convey the subtlety and variety of the results you get when you mix and match. To fill in those blanks, we selected some appropriate applications, offered them the electronic equivalent of ethnic foods, and observed their reactions. The test candidates included both PostScript- and QuickDraw-based drawing programs, color painting applications, gray-scale retouching programs, and three pagelayout packages — combinations of which you're likely to use if you're reading this section.

Ins and Outs

First a word about exporting and importing. Applications have different ways of letting you choose the conversion from native format to some generic one. On the simple side. Save or Save As lets you check the preferred format in the naming dialog box. Then there's Export, Save as Other, and assorted other flavors, with extra spice added by dialog boxes. Read your manuals carefully so you can use the right options and know what formats you're really saving.

Be equally careful when you import. FreeHand and Illustrator can either Open or Place a document. Opening generally means accessing the specified file for full-scale editing. Placing is a more limited form of import. It puts a copy of the imported graphic into an already-open document and permits only large-scale changes such as resizing or shearing. Page-layout programs are placers and offer only resizing, cropping, and gray-scale or color adjustment. Not all applications use a Place command to mean place. Some use Get Picture or another simple phrase. We'll use Place in this article.



By Salvatore Parascandolo

Graphic Examples

Ouibbles and Bits

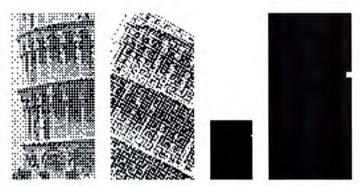
You've probably memorized the difference between bit maps and objects, especially if you read last month's article. But there's more. From time to time, you'll be importing bit maps that need to be resized or rotated. For those occasions, keep in mind that there are two ways to rotate bit maps: as whole objects and by rearranging their bits.

Bit maps are essentially mosaics made from tiny colored or black-and-white tiles. Rotating bit maps in bit-map programs like MacPaint and PixelPaint entails rearranging the tiles that compose the image so that the image looks rotated. Unless it's done in perfect 90-degree steps, rotation generally wreaks havoc on the graphic, producing unwanted effects like shattered patterns, crumbly lines, and jaggies. A bit map handled as an object undergoes less trauma, because objectoriented applications like FreeHand and MacDraw II don't move individual tiles. They treat the image as if it were cemented onto a slab and simply rotate the whole slab.

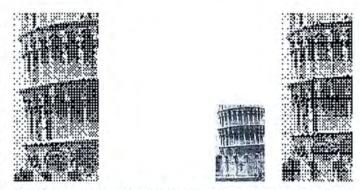
There's also a difference when resizing bit maps. If you shrink a graphic in a bitmap application, its component tiles remain the same size, but some of them are thrown away - they're simply squeezed out of the picture. If you were to reenlarge that same graphic to its original size (not with Undo but by stretching it), those vanished tiles wouldn't come back. Instead, the remaining tiles would grow to fill the larger area, and you'd get the dreaded jaggies. By contrast, shrinking a bit map as an object does shrink its component tiles, so none are ever thrown away. If you shrink an object and then enlarge it to its original size, all the detail will still be there. Thus, if you need to rotate or resize a bit map destined for a page-layout program, first import it to an object-oriented application, modify it there, and then place it in your layout.

Testing, Testing

For these tests, I used a 2-megabyte Mac II with 256-color capability, System 6.0.2, and currently shipping versions of



This complex bit map of the Tower of Pisa was rotated and resized by a paint program. Bit-map rotation visibly disturbed the image dots, and patterns were lost. Reduction and subsequent enlargement eliminated all detail from the picture.



These bit maps were rotated as whole objects in an object-oriented application. There's no shifting of image dots, and patterns are PICTure perfect. Reduction followed by enlargement restores original detail.

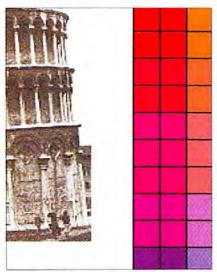
graphics and page-layout software. The printers were a LaserWriter IINTX for black-and-white PostScript output and a Tektronix 4693D for Color QuickDraw output. (Regrettably, our color PostScript printer was sick right up until deadline and could not participate.)

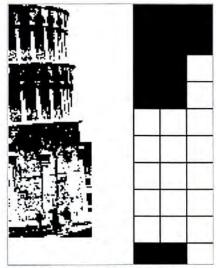
This apparently simple project turned out to be a complicated affair, starting with choosing the applications for producing the generic-format graphics. Some applications, when they export files in PICT or another generic format, will logically (and sometimes illogically) omit image attributes. For example, programs that let you draw with Bezier curves, such as Canvas 2.0, will convert them to Quick-Draw curves when they're exported. MacDraw II strips all color from its PICT saves, giving you patterns instead (food for an entire article in itself).

Ultimately, the generic-format files were prepared with several applications. I used FreeHand 2.0 and Illustrator 88 to produce EPSF object-oriented graphics; Canvas 2.0 and MacDraw II to create PICT documents; Digital Darkroom to generate paint, gray-scale PICT2, TIFF, and EPSF bit maps; LaserPaint Color II for color TIFF: and Studio/8 and PixelPaint for color PICT2 bit maps. Several graphics of the same type, each produced by a different application, were imported into each tested program. The results have been condensed into a chart that highlights how each application imported, displayed, manipulated, and printed the various graphic types and formats.

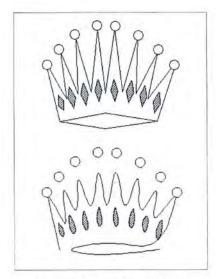
(Foradditional insights into color printing, see "Here's Looking at Hue" in our October '88 issue. Also check out "Moving Pictures," which discusses

DESKTOP FEATURE





On-screen, these images displayed rich colors and cool grays. Alas, these PICT2 files go totally high-contrast when PageMaker 3.01 sends them to the LaserWriter. On the Tektronix 4693D, however, they print very close to what's on-screen.



When FreeHand 2.0 imports this MacDrawn tiara, it misses a few points — actually *all* of them. Smooth move.



Would you trust this image to print well? Can you even tell what it is? It's FreeHand 2.0's display of the Tower of Pisa, imported as 1-bit TIFF. It prints perfectly.

exchanging files among applications and systems, in the September '88 issue.)

If your collection of applications and hardware is slightly or entirely different from ours, invest time in carrying out your own tests and develop a chart similar to the one in this article. Better to take the time now than 15 minutes before some really dead deadline. Once developed, the chart will be easy to update as you get new applications and upgrades. It will save you far more than the time it took to produce. In my case, this chart owes me about four years.

Chart Terms

In general, **OK** means that a graphic imports, displays, or prints as one would expect. When that's not the case, what's corrupted or lost in the process is noted. Losables include patterns, gray tones, gradients, colors, curves, object-oriented nature, and high resolution.

Displays OK — The imported graphic looks on-screen as it did in the application that created it.

Displays as changed — Displays with whatever changes are noted in the related comments. If a comment says "converts to gray-scale bit map," that's what you'll see on-screen.

Edits fully — The importing application can perform any of its native-format editing operations on the imported graphic. If it's an object-oriented application, it can edit the image as a resolution-independent object, including ungroup, refill, reset line weights, etc. If it's a paint program, it can make pixel-level changes to the imported image. If it's a PostScript application, it can edit the object's Bezier curves.

Scale as object, Scale as bit map

— How the importing program scales
(resizes) the graphic.

Prints OK — What you expect from an output device is what you get. On the LaserWriter, grays print as grays, and colors print as grays of varying intensities. On the Tektronix color printer, colors print much as they appear onscreen. In the case of EPSF, you may see a coarse bit map on-screen, but if the printed result is a high-resolution graphic, then it prints OK.

Prints color or high-contrast black and white — On the Tektronix color printer, the image comes out in the expected colors, but on the LaserWriter, gray scale or color prints as pure blacks and whites, depending on the brightness of the areas of color or gray.

Prints as changed — Prints with whatever changes are noted in the related comments. If a comment says "converts to 72-dpi bit map," then "Prints as changed" means that the printed output will look like a low-resolution, black-and-white bit map.

ON APRIL 17, WE'RE GIVING AWAY THE MOST GHTAFTER DWARE IN THE **INDUSTRY**

See our May issue to find out which new Macintosh products won the Eddys—the industry's most prestigious award. Ceremonies will be held April 17th in New York. Read all about it in our special issue. It could be a very rewarding experience.

MacUser



Graphic Examples

Application	Paint and PICT bit map	PICT object	PICT2 bit map
Canvas 2.0	displays OK	displays OK	displays OK, can conv to hi-res b/w dithered bit mag
	scale/rotate as bit map, edits fully	edits fully	scale as object,, edits fully as bit map
	prints OK	prints OK	prints colors, hi-contrast b/w, or b/w dither
Digital Darkroom 1.0	conv to gray-scale bit map, displays OK	conv to gray-scale bit map, displays OK	conv colors to grays, displays grays
	edits fully	edits fully as bit map	edits fully
	prints OK	prints as changed	prints as changed
Drawing Table 1.0	displays OK	displays OK	conv and displays colors as hi-contrast b/w
	scale/rotate as object	edits futily	scale/rotate as object
	prints OK	prints OK	prints only hi-contrast b/w
FreeHand 2.0	displays OK scale/rotate/shear as object prints OK	can Place or Open, displays OK scale/rotate, or edits fully prints OK	conv colors to grays, displays grays scale/rotate/shear as object, can adjust c/b crashed driving 4693D, prints as grays
llustrator 88 1,6	displays as grayed template can auto-trace doesn't print	displays as template, can conv to own format can trace, or edit fully if converted doesn't print as template, prints OK as object	not supported
mageStudio 1.5	conv to gray-scale bit map, displays OK edits fully prints OK	conv to gray-scale bit map, displays OK edits fully as bit map prints as changed	conv colors to grays, displays grays edits fully prints as changed
LaserPaint Color II	displays OK scale as object, edits fully prints OK	displays OK, loses subpoint line weights edits fully as object prints as changed	displays OK scale as object, edits fully no 4693D support, on LW prints OK
MacDraw II 1.0	displays OK	displays OK	displays hi-contrast b/w
	scale/rotate as object	edits fully	scale/rotate as object
	prints OK	prints OK	prints only hi-contrast b/w
PageMaker 3.01	displays OK	displays OK	displays OK
	scale as object, crop	scale, crop	scale as object, crop
	prints OK	prints OK	prints color or hi-contrast b/w
PixelPaint 1.0	conv to 72 dpi, displays OK	conv to 72-dpi bit map, displays OK	conv hi-res to 72 dpi, displays OK
	edits fully	edits fully as bit map	edits fully as color bit map
	prints OK	prints as changed	prints OK
Studio/8 1.0	conv to 72 dpi, displays OK	conv to 72-dpi bit map, displays OK	conv hi-res to 72 dpi, displays OK
	edits fully	edits fully as bit map	edits fully as color bit map
	prints OK	prints as changed	prints OK
luarkXPress 2.0A	displays OK	displays OK	displays OK
	scale as object, crop	scale, crop	scale as object, crop. can adjust c/b/colors
	prints OK	prints OK	prints color or hi-contrast b/w
leady,Set,Go! 4.5	displays OK scale as object, crop prints OK	displays OK scale, crop prints OK	displays OK scale, crop can print color, grays, or hi-contrast b/w

ABBREVIATIONS:

b/w — black and white c/b — contrast and brightness conv — converts hi — high LW — LaserWriter IINTX QD — QuickDraw rects — rectangles res — resolution 4693D — Tektronix 4693D Color QuickDraw Printer

DESKTOP **FEATURE**

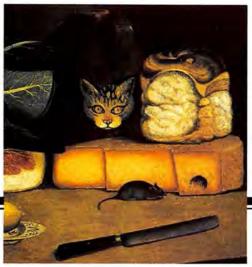
PICT2 object	Gray-scale TIFF	1-bit TIFF
lisplays OK, can conv to hi-res b/w dithered bit map	displays as hi-res bit map halftone	displays as hi-res dithered bit map
dits fully, as object or as bit map	rotates and edits fully as bit map	rotates and edits fully as bit map
prints colors, b/w dither, or hi-contrast b/w	prints hi-res bit map haiftone	prints hi-res dithered bit map
onv to gray-scale bit map, displays grays	displays OK	conv to gray scale, displays grays
dits fully as bit map	edits fully	edits fully
rints as changed	prints OK	prints grays
onv colors to 8 QD colors, displays as changed		
dits fully, puts rects around text blocks	not supported	not supported
rints as changed		
isplays OK, can convert to own object	displays OK	displays coarsely
mooths sharp polygons, scale/rotate/shear	scale/rotate/shear as object, can adjust c/b	scale/rotate/shear as object
arints OK	prints OK	prints hi-res dithered bit map
mports via DrawOver as own object, displays OK		
ext converts variably depending, on original, format	not supported	not supported
prints OK		
onv to gray-scale bit map, displays grays	displays grays	conv to gray scale, displays grays
edits fully as bit map	edits fully	edits fully
prints as changed	prints OK	prints grays
some patterns conv to grays, displays as changed	displays OK	conv to gray scale, displays grays
edits fully	scale as object, edits fully	scale as object, edits fully
no 4693D support, on LW prints as changed	prints OK	prints grays
conv colors to 8 QD colors, displays as changed		
edits fully	not supported	not supported
prints in 8 colors or hi-contrast b/w		
displays colors, conv some grays to patterns	displays OK	displays faint dotty image
scale, crop	scale as object, crop, can adjust c/b	scale as object, crop, invert
prints color or hi-contrast b/w	prints OK	prints hi-res dithered bit map
displays OK, conv to 72-dpi bit map		A1
edits fully as bit map	not supported	not supported
prints as changed		
conv to 72-dpl bit map, some colors change	conv 72-dpi gray-scale bit map, displays as changed	displays 4X enlarged at 72 dpi
edits fully as bit map	edits fully	edits fully
prints as changed	prints as changed	prints as changed
some grays change to patterns, displays as changed	displays OK, some TIFFs don't import	displays faint dotty image
scale, crop	scale as object, crop	scale as object, crop, invert
prints color or hi-contrast b/w	prints OK	prints hi-res dithered bit map
displays OK	displays halftone patterns	displays faint dotty image
cale, crop	scale as object, crop	scale as object, crop, invert
prints OK	prints OK	prints hi-res dithered bit map



Application	Color TIFF	EPSF (non-Illustrator)	EPSF (Illustrator 1.1)
Canvas 2.0	not supported	not supported	not supported
Digital Darkroom 1.0	not supported	not supported	not supported
Drawing Table 1.0	not supported	displays only b/w preview scale, rotate prints b/w bit map on 4693D, on LW prints OK	displays only b/w preview scale/ rotate prints b/w bit map on 4693D, on LW prints Ol
FreeHand 2.0	not supported	displays b/w or color preview scale/rotate/shear prints OK	can Place or Open, displays OK Place: rotate/scale/shear; Open: edit fully prints OK
llustrator 88 1.6	not supported	displays only b/w preview scale/ rotate/ shear prints b/w bit map on 4693D, on LW prints OK	displays OK, opens as own file edits fully, preserves templates & colors prints b/w bit map on 4693D, on LW prints Of
mageStudio 1.5	not supported	not supported	not supported
LaserPaint Color II	opens most OK, crashes w/some, displays OK scale as object, edits fully no 4693D support, prints solarized on LW	displays b/w or color preview scale no 4693D support, on LW prints OK	displays b/w preview scale no 4693D support , on LW prints OK
MacDraw II 1.0	not supported	not supported	not supported
PageMaker 3.01	not supported	displays b/w or color preview scale, crop prints OK	displays b/w preview scale, crop prints OK
PixelPaint 1.0	not supported	displays color or b/w preview, conv to 72-dpi bit map edits fully as bit map prints as changed	displays b/w preview, conv to 72-dpi bit map edits fully as bit map prints as changed
Studio/8 1.0	opens most OK, displays OK edits fully prints OK	not supported	not supported
QuarkXPress 2.0A	opens most OK, displays OK scale as object, crop, can adjust c/b/colors prints OK	displays b/w or color preview scale, crop prints OK	displays b/w preview scale, crop prints OK
Ready, Set, Gol 4.5	opens most OK, displays banded colors scale as object, crop prints banded colors;, on LW prints OK	displays b/w or color preview scale, crop prints OK	displays b/w preview scale, crop prints OK

ABBREVIATIONS:

b/w — black and white c/b — contrast and brightness conv — converts hi — high LW — LaserWriter IINTX QD — QuickDraw rects — rectangles res — resolution 4693D — Tektronix 4693D Color QuickDraw Printer



KURTA® out-smarts the mouse.

urta gives you an absolute alternative.

There are "relative" pointing devices-the mouse. And then there are "absolute" input devices-Kurta IS/ADB™ Input

Systems.



natural. This "absolute positioning" makes it possible to correctly accomplish freehand drawing and tracing. Get your work done absolutely faster and more comfortably.

A total "Input System" with programmable menu-strip.

Kurta IS/ADB's give you a builtin "menu-strip" featuring 11 to 23 function keys. They can be loaded with time-saving, sophisticated macro commands or with simple keyboard shortcuts you create with Apple® Computer's new MacroMaker.® Kurta also gives you the option to put the macros in your hand. Because our IS/PENWORKS® for Macintosh® ADB lets you load the macros and shortcuts on 4-button or 12-button cursor keys. To execute a command, simply quick click on the function key or cursor key instead of going up and pulling down from the menu bar. Fast action, no window flashing, and exactly the same way every time.

Cordless cursors and pens with no equal.

Kurta offers the only cordless 4-button cursor and only cordless 3-switch pen. There are six Kurta pointing devices in all, including the new Kurta 12-button cursor for maximum application control with instant touch.

Built-in software gives you automatic ADB drive.

Only Kurta ships a software

interface driver in every package that makes more than 98% of all software Kurtacompatible. Kurta's IS/PEN-WORKS drivers for the Macintosh

	MOD	KURL	BENL
Moving Parts	Yes	None	No Wear
User Maintenance	Yes	None	No Hassle
Programmable	No	Up to 12 Buttons and up to 23 Function Keys	Keyboard Commands Without The Keyboard
Warranty	Lifetime	Lifetime	No Worry
Pen or Cursor Choice	No	1,2,3 Switch Pen or 4, 12 Button Cursor	More Natural Feel

and serial ports feature Kurta's exclusive "dynamic scaling" to miniaturize/maximize the active area-whether you are enhancing CAD applications on AutoCAD® or VersaCAD® or others, working with

desktop publishing

packages, or

creating graphic designs. A time to compare, a time to act.

The Kurta IS/ADB Input System is only available from Kurta authorized dealers. Call for the one nearest you. No obligation. No alternative. Call now.

1-800-44-KURTA

A Lifetime Warranty

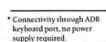
It only looks like a tablet. **HURTA®**

3007 East Chambers Phoenix, Arizona 85040 (602) 276-5533

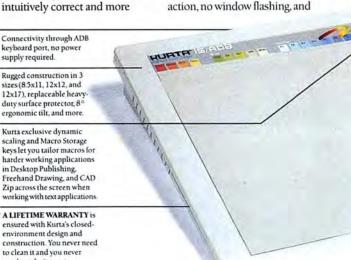
Kurta Color Swash, 15, ADB and IS/PENWORKS are trade-marks and registered trademarks of Kurta Corporation 15/PENWORKS software is designed and developed by Softweaver*. Santa Cruz, California Softweaver is a registered

trademark of Softweaver Corporation VersaCAD is a registered trademark of VersaCAD Corporation Apple, MacroMaker and Macintosh are registered trademarks of Apple Computer Corporation. AutoCAD is a registered trademark of

Please circle 177 on reader service card.



- · Rugged construction in 3 sizes (8.5x11, 12x12, and 12x17), replaceable heavy duty surface protector, 8° ergonomic tilt, and more.
- Kurta exclusive dynamic scaling and Macro Storage keys let you tailor macros for harder working applications in Desktop Publishing, Freehand Drawing, and CAD Zip across the screen when working with text applications
- · A LIFETIME WARRANTY is ensured with Kurta's closedenvironment design and construction. You never need to clean it and you never need to take it apart.



Stop the presses.

DirectPrint[™] is here: \$3495*

You have to see it to believe it.

Fast, efficient, and crystal clear. The DirectPrint non-impact page printer uses liquid crystal shutter technology to produce stunning results at an amazingly low price.

Covering both ends of the spectrum, DirectPrint gives you deep velvet blacks on graphic images as well as sharp readable text with clearly visible fine lines.

To stay ahead you have to run faster.

And we do. Depending on the document, our four-MIPS RISC processor (backed by 3 megabytes of RAM) averages speeds five times faster than the competition. Without sacrificing precision quality.

DirectPrint is PostScript*compatible, giving you

unlimited versatility in creating and manipulating text and graphics.

They do it with mirrors. We don't.

Electro-photography with a liquid crystal shutter array enables the DirectPrint to produce exceptional resolution at 300 dots per inch.

Since we do not use rotating mirrors and lenses we don't suffer from scanning distortion. You can expect consistent quality from the middle of the page to the edges.

And with fewer mechanical parts than conventional laser printers, the DirectPrint offers greater reliability.

We won't weigh you down.

We wouldn't call it a portable, but at 35 pounds the DirectPrint is light

enough to move easily. And with a price of only \$3495, chances are your office is exactly where you will want to move it.

Worldwide doorstep delivery is just a phone call away.

It's easy to order a DirectPrint page printer. We welcome your MasterCard, Visa, and American Express. Dial 1-800-347-3228 in the U.S., 415-282-1111 worldwide.

Our knowledgeable sales staff is on duty Monday through Friday from 8am to 6pm (Pacific Standard Time).



The proof is in the printing.

Please circle 45 on reader service card.

Jasmine Technologies, Inc. 1740 Army Street, San Francisco, CA 94124 Phone: 415-282-1111 Worldwide. 1-800-347-3228 in U.S. Fax: 415-648-1625



The DirectPrint non-impact page printer works with both Apple and MS/DOS-based systems. Weighing only 35.2 pounds, it is 15.7" wide by 13.4" deep by 9.1" high.

TIP SHEET

COMPILED BY GREGORY WASSON

Found a trick, shortcut, or smarter way to get something done with a program? Share your hints by sending them to Tip Sheet, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. We pay at least \$25 for every hint we publish, plus we'll print your name and hometown.

Every month we'll select one tip as the Tip of the Month. The person who sends in that tip will receive \$100 for it.

VIRUS PROTECTION



Here's a very simple and effective way to protect pro-

grams on your hard disk from virus infection. While in the Finder, do a Get Info on each of the programs on your disk and click in the Locked box at the upperright corner of the window (see Figure 1). This usually protects the selected file from accidental deletion, but it also guards it against virus contamination, since it prevents new resources from being written to the application.

Don't forget to protect mini-applications like Font/DA Handler. SEBASTIAN KEMPGEN KONSTANZ, WEST GERMANY

KEYBOARD



While the Ehman Engineering Extended Keyboard

is a vast improvement over the Apple Extended Keyboard, the engineers who designed it must be perfect typists because the Delete key is too small and out of the way.

Realizing that I, too, am not perfect, I almost passed up buying the Ehman board. But the OuicKeys DA included with the hardware won me over. Using QuicKeys, you can reassign keystrokes so that the backslash key (/) and the Delete key switch roles. You can even pry off the respective key caps and switch their positions on the keyboard. And there's a moral to this tip. You should never remain passively content with the hardware or the software you purchase. There are almost always workarounds.

MATT KNOWLES SAN JOSE, CALIF.

STRATEGIC CONQUEST PLUS



are a few hints.

If you feel the need to cheat every now and then when playing Strategic Conquest Plus against your Mac, here

Don't limit fighters to two attacks per round. By using the Move Later command after each attack, you can attack on each move. This works for all water pieces as well. You can also protect fighters from attack by leaving them in an empty enemy city.

For carriers/battleships, use Move Later successively from the day after you put one of these pieces into port for repairs until the piece regains full strength.

On bombers, start building them on day 30 to get a blast radius of 1. For a blast radius of 2, start on day 65. You can hide bombers by

putting them on the same square as any other piece. TIM EVANS DANA POINT, CALIF.

IMAGEWRITER LQ



There is yet another better and easier solution than Edward E. Sharp's for extending the life of LQ ribbons (in the October '88 issue).

On the left side of the LO (where the controls are), there is a small switch. When this switch is depressed, the printer knows that a one-color (black) ribbon is loaded. The black ribbons have a tab protruding that should depress this switch. Color ribbons do not have this tab. Make sure that the tab is depressing the switch. Then most of the ribbon surface will be used for printing.

MICHAEL J. LATIMER OWEN SOUND. ONTARIO, CANADA

STEPPING OUT II



The DA Stepping Out II is a screen extender that al-

lows the creation of large virtual screens on the Mac. Although most people can readily see the benefit of this (particularly for the 9-inch screen of the Plus and SE). there is another benefit for those who would rather use a larger monitor while developing applications for the smaller, standard screens.

Stepping Out II also functions quite effectively as a screen shrinker. Creating a small screen size is simple. First, call up Stepping Out II from your Control Panel. Click New and enter the pixel count for the screen size you want (512 pixels wide by 342 high for the Mac SE). Then, enter a name for your screen definition (such as "Mac SE Screen") and click Save. Finally, highlight the name of your new screen setup and

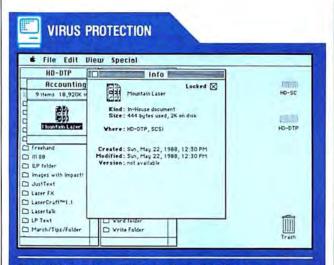


Figure 1: By locking applications with the Get Info box, you can prevent corruption from viruses and other nasties. It's a simple vaccine that doesn't cost a cent.

If you're concerned that \$399 is too little to pay for the new Ehman 20 MB Hard Drive, we'll give you 30 days to change your mind.



EHMAN HARD DRIVE PRICES			
Size (Mb)	Internal	External	
20	NA	\$399	
30+	\$449	\$499	
45+	\$549	\$599	
65	NA	\$649	
85	NA	\$749	



Please circle 131 on reader service card.

The Ehman 20 MB Hard Drive is vivid proof that you don't always get what you pay for...sometimes you get more. At just \$399 the Ehman drive is significantly less than the leading 20 MB drives on the market. But please don't judge us by our price.

True value is based on *performance* and price, and the Ehman drive really hums. It is built upon Seagate technology for optimal speed and reliability. And while it includes all the usual utility software and necessary cables, it may be what's <u>not</u> included that you'll appreciate the most...noise. In fact the Ehman drive provides virtually noiseless performance.

You may be wondering how we can provide so much for so little. The simple answer is excellent engineering and an obsession with efficiency. Ehman has been a leading OEM manufacturer of Macintosh peripherals since 1985. We know how to design better Macintosh peripherals. And we keep the overhead low and the margins thin so we can provide our customers with the very best values.

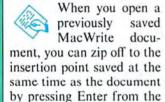
In case you're still not convinced we'll give you 30 days to return your purchase with no questions asked. In addition we back our products with a two-year warranty, compared to as little as 90 days for some manufacturers. Ehman drives are compatible with the Mac Plus," Mac SE," and the Mac II" and come in a variety of sizes. Larger drives are available at equally attractive prices. So call 1-800-257-1666 today or order by FAX at 307-789-4656 for the best value in Macintosh peripherals. Ehman calling hours are 9:00 A.M.-9:00 P.M. EST Monday-Saturday.

click Set. If you have enough memory reserved for the new screen (and assuming that Stepping Out II is active), the change takes place immediately. Otherwise, you will first need to reboot.

Once all this is accomplished, you can easily switch from one screen size to the other by simply turning Stepping Out II on or off from the Control Panel.

DAVID H. LOVETT DUBUQUE, IOWA

MACWRITE 5.0



numeric keypad.

The original manual of MacWrite, when it was still distributed by Apple, documented this fact. Unfortunately, the new, inferior manual from Claris omits this potentially useful maneuver.

BRUCE LANGSTROM BILOXI, MISS.

WORD 3.02

Want to swap the positions of two adjacent paragraphs quickly, without using multiple executions of Cut, Copy, and Paste?

Highlight the paragraphs and check the alphanumeric position of the first word in each paragraph. Then use the Sort command (Word will sort in ascending order) or Shift-Sort (descending order) according to the alphanumerics (see Figure 2).

With a little forethought,

you can figure out how to move two paragraphs around a third paragraph that separates them.

You can also install markers at the heads of as many paragraphs as you wish to rearrange. Use Sort and remove the markers when you're finished. The variations of Sort are endless once you get the hang of this useful and underused tool.

BILL GENERAL BELMONT, CALIF.

If you have received the Microsoft Word Bonus Disk, you may have noticed that the new DA Word-Thesaurus only Finder works with Word or the Finder - it only functions if the information in the About... box of the active application says "About Word. . . ", Microsoft "About MS Word... "About Word. . .", "About Finder...", or "About DAs

Using ResEdit, you can customize WordFinder to work with any application that has a MENU resource. First, open ResEdit and then open the desired application. Open the application's MENU resource and MENU ID=1. open Change the first menu item to "About Word..." (with three periods!) and save your changes (see Figure 3). WordFinder can now provide you its riches in the modified program.

MIKE GLEASON, JR. OMAHA, NEB.

Microsoft Word
3.02 has a littleknown ASCII code
search-and-replace capabil-

ity that can come in handy when using Word to edit and reformat text files created on an IBM PC or PC clone. To find a particular ASCII code within a Word document, type a caret (Shift-6) followed by the decimal value of the ASCII code in the Find What dialog box. Here's how to use

this feature to fix a typical PC text file imported into the Mac environment (always work on a backup copy of the file you wish to convert):

- 1. Select Change from the Search Menu (Command-H).
- Replace the double carriage-return / line-feed

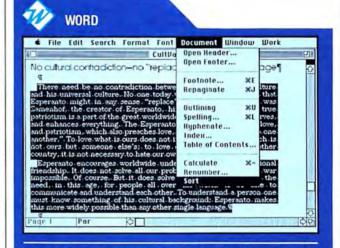


Figure 2: Switching paragraphs around in Word can be a royal pain, usually requiring various combinations of Cut, Copy, and Paste. An easier way is to use Word's Sort command under the Document menu.

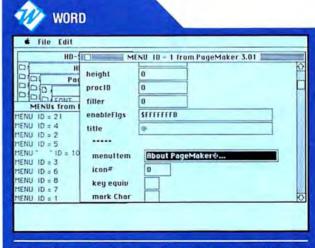


Figure 3: The version of the WordFinder thesaurus now distributed with Word 3.02 unfortunately only works with Word or the Finder. (Maybe that's why it's called WordFinder?) But a little fiddling around in ResEdit can change all that.

Put a Seagate drive at the core of your computer

If you're one of the millions of people who have adopted computers with an SCSI interface, then you should be one of the millions who can use a drive from Seagate, the world's largest manufacturer of SCSI disc drives. These drives come in a wide variety of sizes, capacities and access times, making them ideal for every application.

Whether you're searching for an add-in or add-on subsystem, look for the drive that stands for quality and reliability worldwide and has made Seagate the first name in disc drives. Call us at 800-468-DISC or 408-438-6550 for information on where to purchase SCSI storage solutions.

Form Factor	Model	Capacity	Access Time
	ST125N	21 MB	<30 msec
	ST138N	32 MB	<30 msec
3.5" HH	ST157N	48 MB	<30 msec
3.5	ST177N	60 MB	20 msec
	ST1096N	83 MB	20 msec
	ST225N	21 MB	65 msec
5.25" HH	ST251N	43 MB	28 msec
	ST277N	64 MB	28 msec
	ST296N	84 MB	28 msec





(CR/LF) pairs at the end of each PC text paragraph with a special Mac character as follows. Click the I-beam to the left of the first character in the file. In the Find What box, type 13101310 (13 is the decimal value of the ASCII carriage-return code; 10 is the decimal value of an ASCII line feed).

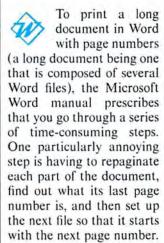
- 3. In the Change To box, type Option-8 for a bullet (•) or another special Mac character not used in the file. Click Start Search or Change All to make the changes.
- 5. Now, replace the CR/LF codes at the end of each line within paragraphs with a space: With your insertion point at the top of the document enter 1310 in the Find What box; in the Change To box, type one space; and then click Start Search or Change All.

6. Finally, go back and replace the special Mac characters (used to mark the end of PC text file paragraphs) with a Return. First click the I-beam at the top of the file. In the Find What box. type a bullet (or whatever special character you used). In the Change To box, type p (a caret followed by a lowercase p represents a Word Return character). Click Start Search or Change All as before.

You can also use this ASCII code search feature to fix PC word-processing documents within Word. For example, some PC documents contain normal text with only occasional ASCII control codes (such as decimal value 12 for form feeds or 9 for tabs). Use Fedit Plus or another Mac file editing utility program to examine the codes in the PC document, and then use this technique to search for and delete these codes within Word. For a complete list of the decimal values for all ASCII codes, see Appendix D of the Microsoft Word 3.02 manual.

By the way, the reverse of this process works as well. You can replace return characters in a Word text file with ASCII CR/LF codes. This allows you to create readable text files for your PC friends and customers without leaving your Mac.

TONY MANCUSO BERKELEY, CALIF.



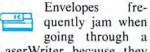
A way around this problem is to choose Page Setup for each file and type the file name of the next file as the manual directs. Then, with the exception of the first file of the set of files that make up the document, blank out the Start Page Numbers At box. That is, leave a 1 in Start Page Numbers At box for the first file and erase the 1 in that box for the other files. Now, reopen the first file of the document and tell the computer to print. The whole document (the concatenated series of files) will print out properly paginated without the inconvenience of having to repaginate each file individually.

This method works only if you begin printing with the first file of the series.

If you print a file that appears in the middle or end of the set of files that make up the document, it just won't work.

MEL C. LABRADOR PRESIDIO OF MONTEREY. CALIF.

LASERWRITER



LaserWriter because they are too stiff to bend around the mechanism of the paper path.

The low-tech solution is extraordinarily simple and takes about two seconds. Before printing, break the spine of the envelope. Run the flap edge of the envelope between your thumb and forefinger, bending it at about a 45-degree angle as it passes through. Do this twice, bending once in each direction so that the envelope ends up flat. [Avoid paper cuts entirely by folding the flap over backwards. -Ed.1

For an even better pass through the printer, break the stiffness along both long edges. This makes the envelope more flexible and the likelihood of jamming is substantially reduced.

ABBY TRUDEAU CUMBERLAND, MAINE



TIP OF THE MONTH

fre-

WORD

Word's outlining capabilities is that there is no Hide Outline Headings command. Often, one wants to compose in an outline, but most headings

A problem with

must be left out of the finished product. You could delete the outline headings manually, but this can be very time consuming in a long document and can also hinder future document revision.

The solution is to use Define Styles to create a style sheet on which all outline styles are based. You could call this "base style." Its style would be the same as Normal Text. Again, using

Define Styles, each of the subsequent outline styles should be defined as being based on this Normal style by entering that name in the Based On box. Now, any changes made to the definition of the base style will automatically be made to all outline styles.

When you have finished composition and want to hide the outline, choose Define Styles and add Hidden Text to the style definition. All outline heads will vanish (unless you select Show Hidden Text). When you print, make sure Print Hidden Text is not checked.

CLAUDE EILERS HAMILTON. ONTARIO, CANADA

he One Scanner That Takes our Jobs From Start To Finish. Microtek's MSF-300Q Gray-scale Scanner MANUAL

Now, instead of pasting up images or sending photos out to be halftoned, the versatile Microtek MSF-3000 Gray-Scale Scanner lets you complete your documents right at your desk.

Because many of your jobs may require revisions, you can create proofs using the MSF-3000 in its single bit-per-pixel mode. Scan charts, logos and photos quickly in up to 64 shades of gray, without taking up up to 64 shades of gray, without taking up a lot of disk space. The MSF-3000's quick and accurate OCR capability makes it easy to add text to your document as well. Now you get clear, crisp proofs from your laser printer at 300 dpi for routing and approval. In most cases these high quality results will be perfect for your everyday desktop.

when you need sharper, higher-resolution images, use the MSF-300Q in its multi bit-per-pixel gray-scale mode. Create final, "camera-ready" artwork with photos in place in up to 64 shades of gray. Scale your images up or down, or enhance them by using sophisticated gray-scale graphics editing software programs. When you're ready to print, the MSF-300Q can present a PostScript® equipped phototypesetter with enough information to produce "magazine-quality" halftones at 150, 175 and even 200-line screens.

Find out how to equip your Macintosh, IBM® PC or PS/2™ with an MSF-300Q Gray-Scale Scanner. Call (213) 321-2121 or 800-654-4160 for the name of your local authorized Microtek dealer.

ROUTING TOWN ONES IN THE TOWN ONES IN THE PROPERTY OF THE PROP

NEW EMPLOYEE MANUAL

A Word From Our President

Welcome to will Manufacturing, like to take this vize you with our d procedures ture. We, at believed that our case our procedures ture to look forward togeth

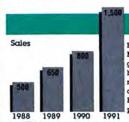
M.M. Inc., a rapidly expanding company, is comprised of extremely talented and dynamic people. Over the next 3 years, sales are projected to triple due to our accurate foresight concerning our customers' needs (see chart below).



Mitch Marshall. President & Found

To maintain this present level of growth we rely on you — our new employees, to provide us with the insight, and direction to meet the constant challenges of our business.

—Mitch Marshall



Our History

Back in 1968, in a small garage outside Bakersfield, California, Marshall Manufacturing was formed. Mitch Marshall perceived a growing market demand for electronic component boards for the burgeoning electronics and computer field. His perception proved right on target. Marshall Manufacturing, Inc., began production with a lean staff of 12. Today, with plants throughout North America and Europe, M.M. Inc. is the leader in providing hardware for the computer industry. As sales continue to grow, we will reach (cont. pg.4)

ARSHALL MANUFACTURING,



Circle 32 for dealer information.
Circle 35 for product information.

S P A C E

EDITED BY LAURA JOHNSON

This month the BBC brings HyperCard and ecology together, we have a review on hold, and from a reader come "handlers" that are useful in creating stacks.

Get organized with Focal Point II, find tools for developers in Card Tricks, and see a selection of foreign-language programs in Flash Cards.

NewsLinks

Ecology in Action

Until very recently, multimedia meant demos to me. All that I had seen were neat, sometimes spectacular, and essentially impractical showpieces.

The British Broadcasting Corporation (BBC) changed my opinion in a hurry. Its London-based Interactive Television Group has produced a stunning teaching tool called Eco-Disc. It consists of a HyperCard control stack and a 12-inch LaserDisc (which they call an LV-ROM) containing the graphic and audio information.

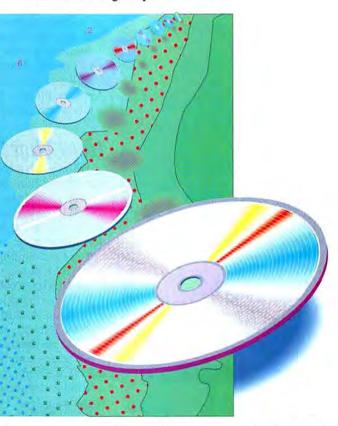
EcoDisc lets users explore a section of the English coast that's rich in flora and fauna. Users select the part of the area they wish to explore, and if the area is not easily accessible to humans (like under water), they can use video cameras.

The wildlife on the land is a bit too shy and elusive for human-operated video cameras, so to check them out you use HyperCard to set up simulated remote cameras wherever you want. You'll see whatever these cameras catch, often only a front or tail of a quick-moving creature. If the glimpse isn't enough for you to identify the animal, the ID function will (with input from you) flash photos of what it might be. (ID also works for plants, trees, and fish.)

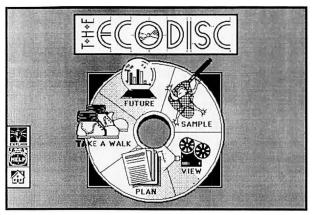
And what of the future? You can make choices about each of the components of the area and then hear commentary and see charts showing what effect your proposals will have on the ecological balance over the next 25 years (in 5-year intervals).

Unfortunately, you're not going to be able to buy EcoDisc on this side of the Atlantic soon. That's because the standards that British TV and Laser-Disc players use are not compatible with American standards. The BBC is considering an American version, but it's not a high priority. The British version costs £159 (about \$300). Other disks about volcanoes and the English countryside are expected to be available shortly.

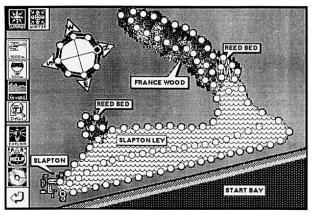
EcoDisc was originally created for







This is the opening navigation card for EcoDisc.



This map shows the area covered by EcoDisc. You can place yourself in any of the small open circles, and you can place cameras anywhere.

the BBC Acorn computer. Conversion to the Mac was basically a matter of creating the control stack. It took only four weeks start to finish.

EcoDisc was the star of the Apple booth at last November's MacUser UK Show. And it may show up at an Apple booth here. If it does, it is certainly worth taking a good look at.

- Steven Bobker

Hold That Review

We were about to review 101 Scripts and Buttons for HyperCard, by Macropac International (now owned by Individual Software), when we learned of a threatened lawsuit involving the stack. According to Robertson Reed Smith, Macropac used parts of his public-domain stack. Stack Starter, a collection of Hyper-Card routines, without his written permission. And Macropac, in a rights statement, gave permission for up to 10 percent of the program to be used "in any commercial non-competing HyperCard product without permission and without the need for any royalties or fees" (with the exception

of Apple's ResCopy). In giving end users this right, Macropac violated Smith's copyright.

We contacted Michael Lunsford, vice president of Individual Software, who stated that the problem had "totally gone away." According to Lunsford, the material belonging to Smith has been removed from the package.

Smith confirmed that his routines have been removed from 101 Scripts and Buttons, but he is also asking that Individual Software place an ad in all the magazines in which it previously advertised, to let people know that a mistake was made and that the Stack Starter scripts are copyrighted and should not have been included.

This situation, as one of the first legal battles over stack copyrights, bears watching. We'd all like to know where the law stands on the issue — how much others' scripts and buttons can be used without copyright infringement.

In our view the matter is still unsettled, and until it is, our review is on hold.

— Laura Johnson

HYPER

TIP

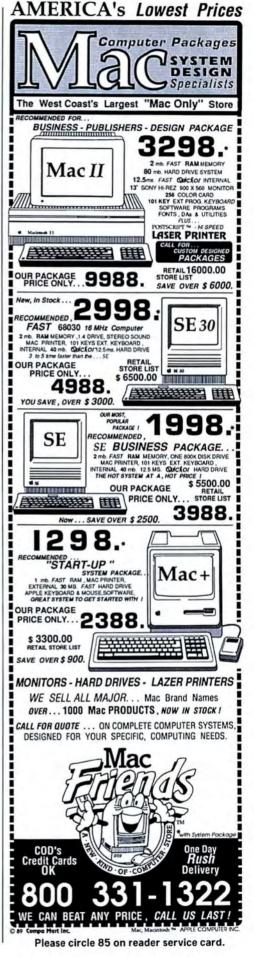
Commanding Tips

When you are creating HyperCard stacks, the Message Box is a very powerful tool for entering HyperTalk commands during development and debugging. It is very common to enter a number of similar and repetitive commands interactively. Unfortunately, the Message Box is only one line in length, and commands are overwritten when new ones are entered or when information is returned to the Message Box. You can spend an excessive amount of time retyoing commands. The following handlers, when installed in the Home Stack script, record and maintain a list of each HyperTalk command typed in the Message Box. You can scan through all previously entered commands and select or modify any command without any retyping. As commands are recorded, they are sequentially numbered, beginning with #1. As commands are recalled, the command number is displayed with the command for one second before disappearing. This helps you keep track of your position in the list of previously entered commands. The following keyboard shortcuts may help you recall commands: Pressing Option-Down Arrow recalls the last command entered; pressing Option-Left Arrow "steps back" and recalls previously entered commands; pressing Option-Right Arrow "steps forward" and recalls previously entered commands: pressing Option-Up Arrow recalls the first command entered; and pressing Return executes the displayed command. When you want to clear out the command list, just enter "clear" in the Message Box. on returnKey

```
global cmds, nlin, cptr
 put msg & return after cmds
 add 1 to nlin
 put nlin into cptr
 pass returnKey
end returnKey
on arrowKey key
 global cmds, nlin, cptr
 if the optionKey is up then pass arrowKey
 if key="left" and cptr>1 then subtract 1 from cptr
 else
  if key="right" and optr<nlin then add 1 to optr
   else
     if key=up then put 1 into cptr
     else
      if key=down then put nlin into cptr
     end if
   end if
 end if
 put "#" & cptr & ":" && line cptr of cmds into msg
 wait 1 seconds
 put line cptr of cmds into msq
end arrowKey
on clear
 global cmds, nlin, cptr
 put msg & return into cmds
 put 1 into nlin
 put 1 into cptr
 put "The command list has been cleared!"
 wait 1 seconds
 put cmds
```

(Thanks to reader Ellis Z. Gabovitch of Lynnfield, Mass., for this tip.)

end clear



HYPER

Focal Point II

Focal Point II is a major upgrade of Focal Point, one of the first commercial HyperCard programs released after HyperCard's introduction in August '87. Both versions were written by Danny Goodman, author of *The Complete HyperCard Handbook*.

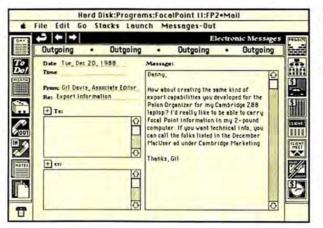
We reviewed the original Focal Point in March '88 and found it an excellent organizational tool that naturally extended HyperCard's unique ability to link applications and information. However, Focal Point's complexity made it difficult to learn, some necessary links were missing, and it had minimal ability to create hard-copy output.

Focal Point II overcomes our hardcopy concerns by offering 60 printing formats ranging from full-size sheets of paper to popular DayTimer-style listings. In addition, Focal Point II can export data over a cable to two electronic displays: a wristwatchlike device called the WristMac and a handheld computer, the Psion Organizer.

Our other concerns about Focal Point's lack of a few linkages have also been addressed. Goodman has added many more links, including a to-do list that automatically carries over uncompleted items from the previous day. All in all, he's written over 50 specific enhancements. Unfortunately, this drive toward more and more capabilities has increased the difficulty of learning Focal Point II and made it mandatory to read large portions of its 335-page manual.

As the clearly written manual reveals, Focal Point will do a lot. Its 16 original modules handle appointments and to-do lists, create telephone directories, log calls, record time and materials billings, begin draft letters, take notes, calculate expenses, create projects, and search for any recorded information using HyperCard's amazingly fast Find function.

In addition, Focal Point II has two major new modules: a built-in electronic-mail system, and a Task Manager for assigning and tracking complicated projects. Most impressive is Focal Point II's integral mail system, which creates, sends, and receives memos. This E-mail system can be



Focal Point II has its own electronic message system that works with TOPS or AppleShare LANs.



A module in Focal Point II called Task Manager helps define and assign projects, tasks, and subtasks.

used in conjunction with Focal Point II's new Task Manager to define and assign project tasks and subtasks. These tasks and status reports can be sent electronically to and received from others.

Access to any one of these 18 modules is very convenient. Any 16 of them can be reached by a click on their icons, which the user arranges in two vertical strips on either side of the module's cards. All modules are also available through a pull-down menu.

On the other hand, I found Focal Point II more geared to the independent contractor than the staff employee. The automobile expense module didn't let me note the reason for my travel — it only left me space for entering a client or project. Of course, I could add my own field because Focal Point II is based in HyperCard.

Those of you who want to customize Focal Point's HyperTalk script can purchase the Focal Point Toolkit directly from TENpointO. It contains detailed information about how Focal Point is programmed.

If you want to replace your multitude of electronic and physical storage places with a few instantly searchable stacks, try Focal Point II. It's a solid, second-generation HyperCard product that creates an information home base.

- Gil Davis

Focal Point II



List Price: \$199.95

Published by: TENpointO, 3885 Bohannon Drive, Menlo Park, CA

94025; (415) 329-0500.

Version: 1.0

Requires: 1 megabyte, hard disk, HyperCard 1.2.1 or later.

Compatibility: MultiFinder friendly

with at least 2 megabytes.

Application Size: 1 megabyte with

minimal configuration.

Copy Protection: None

How to speed up your accounting

cycle

Whether you're shopping for your first computerized accounting system or making do with some other "solution", you owe it to yourself to see why Bedford's Simply Accounting is the fastest way to get your small business from transaction to report.

"Simply Accounting is one of the best all-in-one programs"

Macworld October 1988

Quick to setup...

Installation is as easy as copying the program onto a working diskette and double-clicking the icon.

Easy to learn ...

Within minutes you will be moving easily through the six fully integrated functions using only your mouse. The sample accounting records and selfpaced tutorial allow you to get comfortable with the program before entering your own company's data.

A snap to use ...

bedford

Simply

With Simply Accounting you'll need to enter transactions only once. Payroll, Payables and Receivables data are instantly transferred to General Ledger,

Inventory and Jobcost as required.

On-screen lists of Accounting your chart of accounts, suppliers, customers, employees and inventory pop up with a simple click and



Unlike software that was never built for speed, Macintosh™ based Simply Accounting has been optimized to give your small business the boost it needs.

drag of your mouse.

If you need your bottom line in a hurry or a quick check of a client's payment status, a few clicks is all it takes to display any report instantly.

"small businesses owe it to themselves to give this product a hard look"

MacUser September 1988

If you require additional help, our exclusive Comfort Guarantee provides free technical support and program updates for your first thirty days.

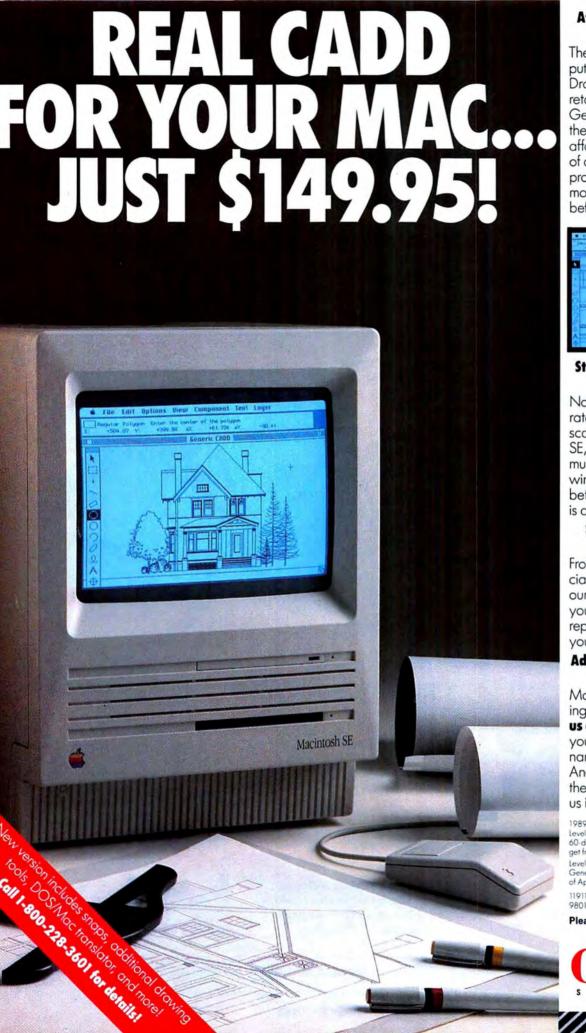
Stop wasting time...

Blast down to your nearest Bedford dealer or Apple® reseller today and, for only \$349 complete, let Simply Accounting show you the easiest way to speed up your accounting cycle.

> Call 1-800-255-8361 for more information.

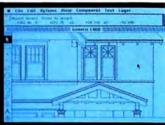
bedford making software comfortable

Bedford Software Corporation • 15311 N.E. 90th Street • Redmond, WA 98052 • Fax (206) 885-0859 • (206) 883-0074



Affordable CADD. And it's only the beginning.

The CADD stands for Computer Aided Design and Drafting. With a suggested retail price of just \$149.95, Generic CADD Level 1 makes the power of real CADD affordable. And it's just part of a family of Generic CADD products that will make you more productive than ever before.



Standard Mac interface for ease of use.

Now you can produce accurate drawings with real work scale on the Mac Plus, Mac SE, or Mac 11. You can edit multiple drawings in separate windows and cut and paste between them. CADD Level is also multifinder compatible

Symbol Libraries boost productivity.

From office furniture to specialized electronics symbols, our Symbol Libraries save you the time of redrawing repetitive elements every time you need them.

Add the power of real CADI to your Mac.

Move your Macintosh drawings into the real world. **Call us at 1-800-228-3601** for your free CADDalog or the name of your Generic dealer And find out why we say tha the only thing generic about us is the price.

1989 Generic Software, Inc. Generic CADD Level 1 is not copy protected and comes with a 60-day money back guarantee. Registered user get free technical support from Generic.

Level 1 and Generic CADD are trademarks of Generic Software, Inc. Macintosh is a trademark of Apple Computer, Inc.

11911 North Creek Parkway South, Bothell, WA 98011

Please circle 1 on reader service car



The English language portion of this month's sermon, the 12th Card Trick, skins quite a different cat. I have tried, over the past year, to provide some useful tools for

ming example shows.

developing HyperCard stacks, but I have also tried to present topics in an order that made the column a kind of course in HyperTalk programming. Since it is sometimes hard to see the feline for the fur, this month I am reviewing the columns to date,



theScripts and put empty into analysis near the top of the mouseUp handler. Eric Alderman's Script Report,

available on many on-line services, approaches the problem differently, with a different set of strengths and weaknesses, and gets around the 30,000-character limit.)

My second desideratum for learning to write code (after some code to read) is some good writing, editing, and debugging tools. The next three columns were about writing, editing, and debugging scripts. In June I talked about the process of writing, both of

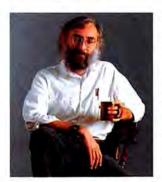
code and of prose, and presented four approaches to invoking the script editor with an edit button. The code for that column was made obsolete by version 1.2 of HyperCard; the text, 1 hope, still has some value. In July I shared a simple Script

Read Before You Write

revealing what logic there is behind the sequence of topics, and at the same time fixing some bugs.

It is my prejudice (although you may use it without royalty fees) that one should learn to read a programming language a little before learning to write it. A less contentious belief - that reading others' code will make you a better programmer - is

program in HyperTalk, you can try out several ways of solving a problem.



BY MICHAEL SWAINE

in the public domain. Hyper-Card is a reader's language; you can read the HyperTalk code in others' stacks. The trick is finding the code. The first Card Tricks column, back in May '88, addressed this problem. The Stack Analyzer pulled together all the scripts and other pertinent information about a stack and displayed it in a field. It did its job reasonably well and found its way onto several on-line services and into the BMUG catalog. But as published it had some limitations. It couldn't handle stacks whose scripts totalled more than 30,000 characters, it sometimes got confused by stack names not enclosed in quotation marks, and it failed to clear two fields. (The fix for the last was published in the September '88 issue, and consists of adding the lines put empty into Formatter that I wrote in order to ensure that my code would fit in a vertical two-thirds page in MacUser, and August's column was a Profiler, a debugging tool that I now regret publishing: It was too complex for tutorial purposes. (Around the time these came out, TENpointO released the most important text-output product for HyperCard to date: Reports. Although I held it to high standards in my Quick Click in the August '88 issue. Reports was then, and remains today, one of the most powerful stack-development tools and is nearly essential for HyperCard report generation.)

Once you've learned to read and write and debug HyperTalk code, you can begin to think about quality, and that starts with thinking about the user interface. September's column was an exploration of the HyperCard user interface. I offered some new HyperCard gestures for users to make, both my gestures and readers', and discussed Apple's advice to interface builders.

When you begin to like your creations and have developed a few tools you think enough of to reuse, you need a pegboard on which to hang them. I presented a Programmer's Pegboard in the October and November issues, for organizing the resources, buttons, and scripts that you reuse. Many readers pointed out that I failed to include the Home stack script that lets you invoke the Pegboard. You'll find it with this month's code.

The rest of the year was an exploration of various programming techniques and applications. The theme for MacUser's December issue was artificial intelligence, and I looked forward to the opportunity to make use of my graduate school training. Unfortunately, all the techniques I learned as AI in 1979 are mundane programming methods today, so, observing that nothing looks as intelligent as serendipity, I wrote a Random ? Sentence Generator. It took another month to wrap up that 5 amusing little toy. The biggest problem with it, as one reader pointed out, was that it tended to clutter up the screen with fields.

NATIONAL COMPUTER CONCEPTS 1-800-331-5959

CMS HARD DRIVES	
MacStack SD20 Ext.Mac II/Plus/SE \$539.0	0
MacStack SD43 Ext.Mac II/Plus/SE \$730.0	
MacStack SD60 Ext.Mac II/Plus/SE \$730.0	
MacStack SD80 Ext.Mac II/Plus/SE \$7/0.0 MacStack SD80 Ext.Mac II/Plus/SE \$1175.0	
MacStack SD80 Ext.Mac II/Plus/SE S11/5.0	N.
MacStack SD102K Ext.Mac II/Plus/SE \$1199.0	ю
MacStack SD140K Ext.Mac II/Plus/SE \$1290.0	
Pro 20SE/r Megabyte SE Only-Rear Mount \$469.0	
Pro 30SE/r Megabyte SE Only-Rear Mount \$489.0	
Pro 45SE/r Megabyte SE Only-Rear Mount \$669.0	ю
Pro 100SE/r Megabyte SE Only-Rear Mount \$1395.0	
Pro 20SE/i Megabyte SE/II Front Mount \$469.0	
Pro 30SE/i Megabyte SE/II Front Mount \$489.0	O
Pro 45SE/i Megabyte SE/II Front Mount \$669.0	
Pro 100SE/i Megabyte SE/II Front Mount \$1395.0	2
Pro 43II/i Megabyte Mac II\$615.0	, O
Pro 6011/i Megabyte Mac II	N)
Pro 8011/1 Megabyte Mac II	ю
Pro102 Megabyte Mac II	ю
Pro140 Megabyte Mac II	ю
Pro150 Megabyte Mac II	ю
Pro300 Megabyte Mac II\$2620.0	Ю.
TS/60 Megabyte Tape Backup Ext.MacII/Plus/SE., \$695.0	00
RODIME HARD DRIVES	100
Rodime 20 Plus Ext.Mac II/Plus/SE \$580.0	
Rodime 45 Plus Ext.Mac II/Plus/SE \$870.0	
Rodime 60 Plus Ext.Mac II/Plus/SE \$985.0	
Rodime 100 Plus Ext.Mac II/Plus/SE \$1165.0	
Rodime 140 Plus Ext.Mac II/Plus/SE \$1240.0	ю
Rodime 450 RX Int.Mac II/SE\$765.0	
Roding 1000 PX Int Mac II \$970.0	YO.
Rodime 1000 RX Int.Mac II	'n
	N
WESTERN DIGITAL HARD DRIVES	D.
Preference 20 Mac II/Plus/SE/ Apple II+/IIGS/IIe 575.0	ю
Preference 40 Mac II/Plus/SE/ Apple II+/IIGS/IIe 750.0	ю
MEMORY	
By Dove	n
1 Meg Simms 100 & 120ns Ca	II
DIGITIZER/SCANNERS	
MacVision 2	
Thunderscan 4.0 with PowerPort \$199.0	
	Ю
Caere Omnipage5569.0	00
Caere Omnipage5569.0	00
Caere Omnipage5569.0	00
Caere Omnipage	00
Caere Omnipage 5569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0	00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0	00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.6 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$200 FTWARE	00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0	00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0	
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0	
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.5	00 00 00 00 00 00 00 00 00 00 00 00 00
Cacre Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.5 Cricket Pict-O-Graph \$99.3	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPae 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.0 Dark Castle \$24.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.0 Dark Castle \$24.0 Gofer \$44.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS \$179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.5 Cricket Pict-O-Graph \$99.3 Dark Castle \$24.0 Gofer \$44.0 Fastback \$56.2	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E. \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.5 Cricket Graph \$1155.0 Cricket Graph \$99.9 Dark Castle \$24.0 Gofer \$44.0 Fastback \$556.5 FoxBase Plus Mac \$209.5	00 00 00 00 00 00 00 00 00 00 00 00 00
Cacre Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.3 Dark Castle \$24.0 Gofer \$44.0 Fastback \$56.2	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPae 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.3 Dark Castle \$24.0 Gofer \$44.0 Fastback \$56.7 FoxBase Plus Mac \$209.5 Illustrator 88 \$319.0 Image Studio \$279.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPae 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.3 Dark Castle \$24.0 Gofer \$44.0 Fastback \$56.7 FoxBase Plus Mac \$209.5 Illustrator 88 \$319.0 Image Studio \$279.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.5 Cricket Graph \$115.5 Cricket Pict-O-Graph \$99.9 Dark Castle \$24.0 Gofer \$44.0 FoxBase Plus Mac \$209.5 Illustrator 88 \$319.0 Image Studio \$279.0 Laser FX \$115.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS 179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.0 Dark Castle \$24.0 Gofer \$44.1 Fastback \$56.7 FoxBase Plus Mac \$209.9 Illustrator 88 \$319.0 Image Studio \$279.0 Laser FX \$115.0 Quark XPress \$499.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.0 Farallon MacRecorder \$135.0 MODEMS Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE Beyond Dark Castle \$24.0 Cricket Draw \$167.0 Cricket Draw \$167.0 Cricket Graph \$115.5 Cricket Pict-O-Graph \$99.0 Dark Castle \$24.0 Gofer \$44.6 Fastback \$56.7 FoxBase Plus Mac \$209.0 Illustrator 88 \$319.0 Image Studio \$279.0 Laser FX \$115.0 Quark XPress \$490.0 Ready Set Go \$279.0	00 00 00 00 00 00 00 00 00 00 00 00 00
Caere Omnipage \$569.6 Farallon MacRecorder \$135.0 MODEMS 179.0 Anchor Automation MacPac 2400E \$179.0 Practical Peripherals 2400 SA (MacCommpack) \$229.0 SOFTWARE \$24.0 Beyond Dark Castle \$24.0 Canvas \$169.0 Cricket Draw \$167.0 Cricket Graph \$115.0 Cricket Pict-O-Graph \$99.0 Dark Castle \$24.0 Gofer \$44.1 Fastback \$56.7 FoxBase Plus Mac \$209.9 Illustrator 88 \$319.0 Image Studio \$279.0 Laser FX \$115.0 Quark XPress \$499.0	00 00 00 00 00 00 00 00 00 00 00 00 00

No membership fees. Visa, Master Card and American Express Cards, C.O.D.s Welcome, cash, certified check or money orders, Shipping: Minimum \$4.50, Federal Express, UPS, Red & Blue

Great Service · Great Price

Hours: 9:00 am to 7:00 pm Mon-Fri EST Saturday 9:00 am to 1:00 pm ALL ITEMS SUBJECT TO AVAILABILITY, PRICES SUBJECT

SUM Symantic Utilities

SuperLaserSpool

Tops Repeater

Tops FlashCard .

SuperSpool

The Print Shop

Tops Teleconnector Din 8 or Din 9

High Quality Disk Drives at Low Prices Over 1500 Additional Products Available

TO CHANGE WITHOUT NOTICE

Please circle 34 on reader service card.

The January '89 column included a HyperText trick that allowed jumping from field to field, but the real trick was to hide fields when not using them, which I did in January.

February took a longer ramble in the fields, as I showed a way of implementing virtual fields that could hold megabytes of data. They would have been useful in the Stack Analyzer. Although my virtual fields do work, they are fragile and best viewed as a scripting example.

At the beginning of this series and at the beginning of this month's column, I emphasized the importance of reading others' code. One good reason to read code is to find algorithms — techniques for solving common problems. The best algorithms are not in stacks, though — at least not yet. But even if HyperTalk is your only programming language, you may be able to follow algorithms described in programming books and magazines. I came across a good algorithm for fractal graphics in *The Science of Fractal Images* by M.F. Barnsley, R.L. Devaney,

B.B. Mandelbrot, H.O. Peitgen, D. Saupe, and R.F. Voss (New York: Springer-Verlag, 1988), and implemented it as March's Shrub-

Verlag, 1988), and implemented it as March's Shrubbery script. Fractal graphics have made it to the silver screen to build worlds in science-fiction films. This particular

to the silver screen to build worlds in science-fiction films. This particular algorithm is ideal for designing shrubbery.

That's the cat's cadaver. Read others' code, write and debug your own, concen-

code, write and debug your own, concentrate on quality, organize your tools, play around, steal. I mean borrow. This month's programming offering includes another borrowed algorithm. (It's borrowed in three senses: I got it from Jim Blinn, who got it from J. E. Bresenham, its author, and I am borrowing my own implementation from my book, *Dr. Dobb's Essential HyperTalk Handbook*, (Redwood City, Calif.: M&T Books, 1988). The script shows three ways to draw a circle; implementing all three of these algorithms and timing them is an enlightening exercise.

- -- Home stack script for Programmer's Pegboard
- -- Released to the public domain
- -- by Mike Swaine, January 1989.

On pb

Global pbTargetStack

Put the long name of this stack into pbTargetStack

Push card

Go to stack "PegBoard"

Answer "Interrupt?" with "Yes" or "No"

If it is "Yes" then exit to HyperCard

Pop card

End pb

- -- Three ways to draw a circle
- -- Released to the public domain
- -- by Mike Swaine, January 1989.
- -- Drawing a circle with the oval tool.
 On mouseUp

Global fgColor, bgColor, colors
Put the seconds into secStart

Put 256 into H

Put 171 into V

Set centered to true

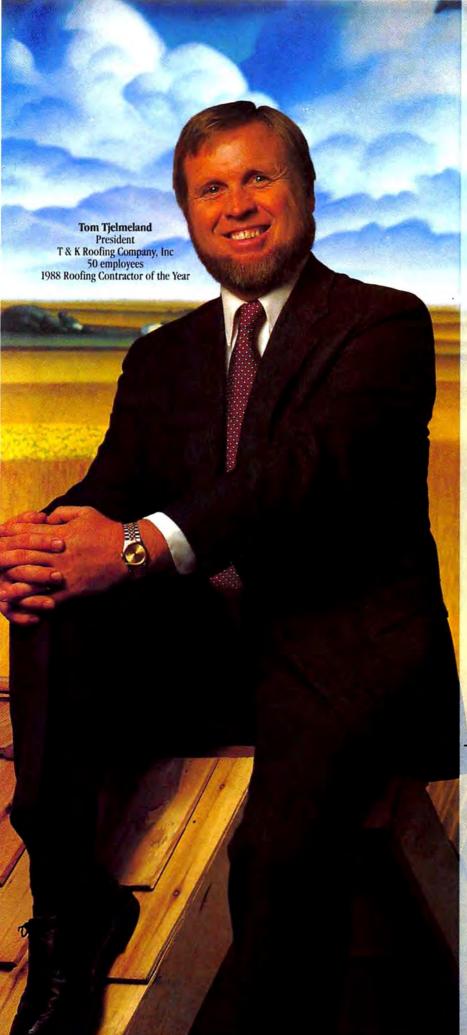
Choose oval tool

\$75.95

\$32.00

\$129.00

\$169.00



"Our business was going through the roof, but our old accounting system was holding us down.

"In the commercial roofing business, you have to be on top of things in the office, too.

Accurate budgeting and planning are essential.

"But in the last five years, our business has really grown. And our stand-alone computers and simple accounting software system just couldn't handle it. We decided to switch to the Macintosh. And fortunately, our dealer showed us the Great Plains Accounting Series at the same time. It was just what we needed!

"It was so easy to learn and use, we didn't lose any time putting the system into place. And since it is fully-integrated and expandable, we've been able to add modules as our business required them.

"Adding Network Manager was easy—no data re-entry was necessary. And it gave us multi-user capability. Now, our people at eight different work stations can use Great Plains at the same time. And the customer assistance from Great Plains is excellent—the most responsive we've ever dealt with.

"We haven't even begun to use all the capabilities that Great Plains provides us. And we feel good about that. Take it from me—after you've outgrown one system, you don't make

that mistake again. ??

Macintosh is a registered trademark of Apple Computer Inc.

Please send me a free copy of "Great Plains Success Stories," featuring the #1 overall rated accounting package for small and medium-sized businesses.*

opy of ories,"	1000
rated	
d	

Name	200	-			Section 1999	-	-
Company		288	1	3	3123		
Address	-		15				8.

City _____ State ____ Zip Code ____

Business Phone Mail To: Great Plains Software

Attn: Information Center P.O. Box 9739, Fargo, ND 58109 Or call Toll-Free: 1-800-345-3276

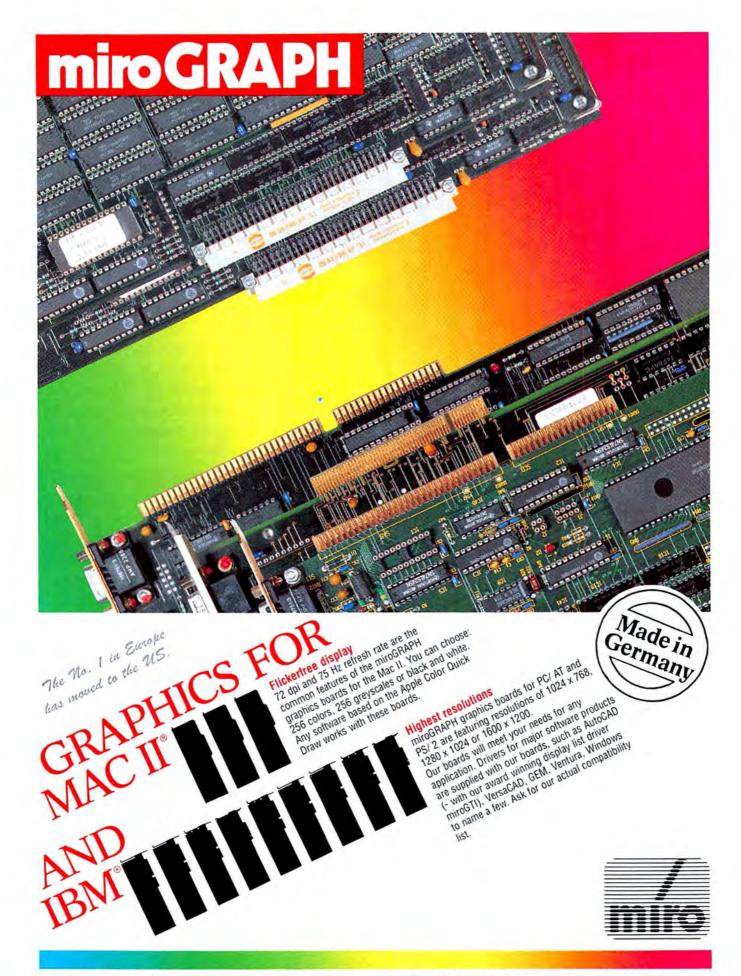


GREAT PLAINS SOFTWARE

*Sheldon Needle survey, 1988

MU-489

Please circle 123 on reader service card.



```
Color item random (8) of colors, "white"
  Drag from H, V to H+150, V+150-
  with optionKey
  Choose browse tool
  Put the seconds-secStart && "seconds"
End mouseUp
-- Drawing a circle with trig functions.
On mouseUp
  Global fgColor, bgColor, colors
  Put the seconds into secStart
  Put 256 into H
  Put 171 into V
  Choose brush tool
  Color item random (8) of colors, "white"
  Repeat with D=1 to 360
     Put D*2*pi/360 into R
     Put 150*cos(R) into Hdelta
     Put 150*sin(R) into Vdelta
     Click at round (H+Hdelta), round (V+Vdelta)
  End repeat
  Choose browse tool
  Put the seconds-secStart && "seconds"
End mouseUp
-- Drawing a circle with Bresenham's algorithm.
On mouseUp
  Global fgColor, bgColor, colors
  Put the seconds into secStart
  Put 256 into H
  Put 171 into V
  Choose brush tool
  Put 0 into ix
  Put 150 into iy
  Put 0 into ie
  Color item random (8) of colors, "white"
  Repeat while ix ≤ iy
     If ie < 0
     Then
        Put ie + iy + iy - 1 into ie
        Subtract 1 from iy
     End if
     Put ie - ix - ix - 1 into ie
     Add 1 to ix
     Click at H+ix, V+iy
     Click at H-ix, V+iy
     Click at H+ix, V-iy
     Click at H-ix, V-iy
     Click at H+iy, V+ix
     Click at H-iy, V+ix
     Click at H+iy, V-ix
     Click at H-iy, V-ix
```

End repeat

End mouseUp

Choose browse tool

Put the seconds-secStart && "seconds"



Please circle 175 on reader service card.

Systat. The only professional statistics package on the Mac.

If you are serious about statistics, there is only one choice. Mac reviewers have named it:

"Systat, the best statistics program on the market . . ."

MacWeek

"... for scientific and commercial use the Systat-Mac combination is the top choice..." Macworld

"SYSTAT currently represents the high end of Macintosh stat software..." MacWeek

Version 3.2 now offers more graphics than any Mac or mainframe package, plus a new full-featured data editor.



Available for Macintosh Plus, SE and II. Single copy price: \$595. Site licenses, quantity prices available. Call or write for further information.

Systat Inc., 1800 Sherman Avenue Evanston, IL 60201 312 864.5670

Please circle 155 on reader service card.

Graphics Overlay plots PostScript support for LaserWriter Export pict files Two dimensional: Error Bars Scatterplots Line and Vector Graphs Vector, Dot, Bubble and Quantile Plots Bar Graphs (single, multiple, stacked, range) Box plots (single and grouped) Stem-and-leaf diagrams Linear, quadratic, step, spline, polynomial, LOWESS, exponential smoothing Confidence Intervals and ellipsoids (any alpha value) Smooth mathematical functions Rectangular or polar coordinates Log and power scales ANOVA interaction plots Histograms (regular, cumulative, fuzzy) Stripe and jitter plots Gaussian histogram smoothing Scatterplot matrices

Voronoi Tesselations Minimum spanning tree Maps with geographic projections (U.S. state boundary file included) Chernoff faces

Star pilots Fourier plots Pie charts Contour plots on regularly and irregularly spaced points Control charts and limits

Three dimensional: Data plots Smooth function plots Vector plots Linear, quadratic, spline, least squares surface smoothing Three-dimensional type fonts.

Statistics Basic statistics, frequencies, ttests, post-hoc tests Multiway crosstabs with log-linear modeling, association coefficients, PRE statistics, asymptotic standard errors

Nonparametric statistics (sign, Runs, Wilcoxon, Kruskal-Wallis, Friedman two-way ANOVA, Mann-Whitney U, Kolmogorov-Smirnov, Lilliefors, Kendall coefficient of concordance) Pairwise/listwise missing value correlation, SSCP, covariance, Spearman, Gamma, Kendall Tau, Euclidean distances

Linear, polynomial, multiple, stepwise, weighted regression with extended diagnostics. Multivariate general linear model includes multi-way ANOVA, ANOCOVA, MANOVA, repeated measures, canonical correlation. Principal components, rotations, components scores. Multidimensional scaling. Multiple and canonical discriminant analysis, Bayesian classification. Cluster analysis (hierarchical, single, average, complete, median, centroid linkage, k-means, cases, variables). Time series (smoothers, seasonal and nonseasonal ARIMA, ACF, PACF, CCF, transformations, Fourier analysis)

Nonlinear estimation (nonlinear regression, maximum likelihood estimation, and more).

Data Management Spreadsheet data editor with row/column cut and paste Transformations executed via menus and dialog boxes Import/export text files Missing data, arrays, character variables Character, numeric, and nested sorts Subgroup processing with SELECT and BY Value labels and RECODE statements Unlimited cases.

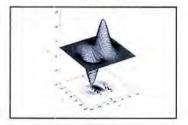
Macintosh Plus, SE, II and LaserWriter are registered trademarks of Apple Computer, Inc., PostScript is a trademark of Adobe Systems, Inc.

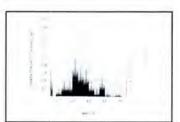
Mac screens



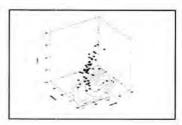


LaserWriter™ graphics









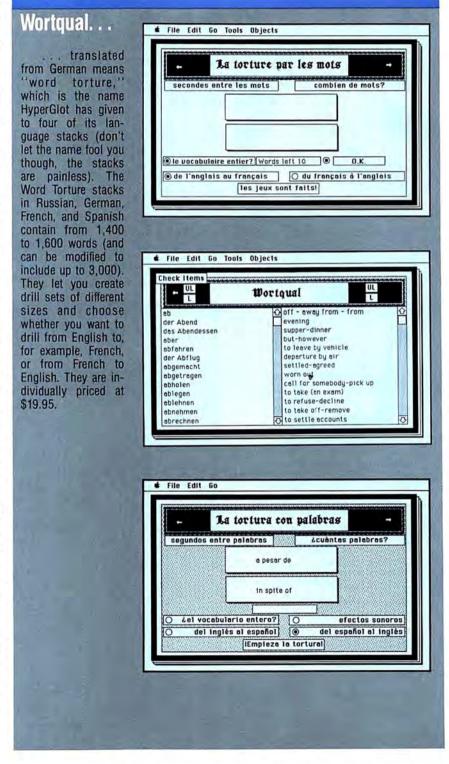
FLASH

EDITED BY LAURA JOHNSON AND VICTORIA JUAREZ

Since Flash Cards premiered in our December '87 issue, we have shown you an intriguing variety of Hyper-Card stacks — some homegrown and some of the commercial variety. This month's selection of Flash Cards includes a group of foreign-language stacks; some are suitable for the beginner, others are for those who have studied a foreign language in the past.

HyperGlot Software recently introduced ten stacks in Russian, German, Spanish, and French that are primarily designed for students or those who have some knowledge of a particular language. The series includes verb tutor stacks and extensive vocabulary drills. Chinese Exercises 19A, geared for students of Chinese, is based on exercises developed by Professor Madeline Chu of the Department of Asian Language and Literature at the University of Massachusetts at Amherst. Two linguists at Harvard and Cornell universities developed The Lexical Engineer, a reference tool for anyone interested in Japanese. Speed Spanish, created by the West Coast School of Memory Training, uses six strategies to help you learn to communicate in Spanish in most situations. Finally, expand your vocabulary in Spanish or French with FlashCard Spanish and FlashCard French by Barbara Fitch Cobb. If you're interested in learning a language, are a current student, or need a refresher course, one of these HyperCard language stacks may be the answer for you.

You can find the shareware and freeware stacks on bulletin boards and the commercial stacks at your local software emporium. If you create a stack that you think others will be interested in, send it to Flash Cards, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404. We can't promise to show your stack and we can't return your disk, but we might make you famous.



Overheads for Laser Printers!





For great presentations use Avery Overhead Transparencies for Laser Printers. Sheets feed automatically from the paper tray of your HP,[™] Apple,[™] or other popular laser printer.

Avery Overhead Transparencies for Laser Printers (Product #'s 5182 & 5282) and Avery's complete line of Laser Printer Labels are available wherever computer and office supplies are sold. Or call

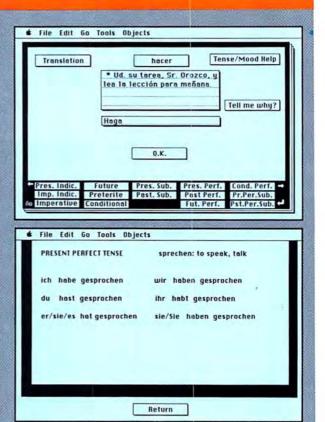
1-800-535-3232 ext. 30 for a free sample pack.



F L A S H C A R D S

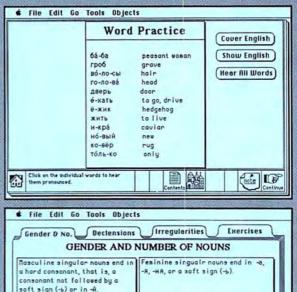
Verbalease

Ease into the action with Verbal Tutors for Russian. German, French, and Spanish. Each stack contains 200 sentences to drill you on verb usage. Hyper-Glot's HyperText capabilities allow you to check verb conjugation, see sentence translation, and review references on the rules for usage for each sentence. The German, Spanish, and French Verb Tutors each have 20 verbs; the Russian Verbal Aspect has 40. Each sells for \$29.95.



No Need for Rushin

To get an idea of what the Russian language is like, begin with Introduction to Russian. You can learn the Russian alphabet or how to read and pronounce words and sen-tences. This set of three disks sells for \$39.95. When you feel you're ready to move on, expand your vocabulary with the Russian Noun Tutor. It drills over 300 noun forms and includes a reference section for the noun declensions. It's priced at \$29.95. Contact HyperGlot at 505 Forest Hills Blvd., Knoxville, TN 37919; (615) 558-



Gender & No. Declensions	
GENDER AND I	NUMBER OF NOUNS
Nasculine singular nouns end in a hard consonant, that is, a consonant not followed by a soft sign (-b) or in -A. Masculine	Feminine singual nouns end in -a, -A, -HA, or a soft sign (-b). Feminine
Neuter singular nouns end in ⊸, ⊸, ⊣ne, or ⊸. Neuter	The formation of the plural depends on the singular form. Plurals
Click on the buttons for mor	e information Soft Signs

Please circle 42 on reader service card.

Tomorrow's Upgrade Today

Apple has made it clear that the 1.4Mb SuperDrive will be included in their new, high-end machines, but has yet to offer an upgrade. PLI has an upgrade path for everyone, today. The TurboFloppy 1.4 from PLI gives you 1.4Mb Macintosh floppy diskettes, connectivity with MS/DOS and high-speed floppy disk performance.

Format 1.4Mb floppy disks on a drive that is compatible with the Macintosh Plus, SE, and II, but only costs half as much as the competition. Move over SuperDrive.

Read and write MS/DOS files with your Macintosh on 720k and 1.4Mb diskettes. Finally, you can easily use data from IBM machines and compatibles without leaving your Macintosh. Just plug the drive in, insert a disk

and you're on your way.



Fast floppy storage is at your fingertips because PLI's TurboFloppy 1.4 uses the SCSI port to transfer data. We even include TurboCache which reduces the access time of your drive to near zero and TurboBack so that you can use your new drive to make fast, easy and economical backups of your data.

TurboFloppy 1.4 is the upgrade you can afford. It requires no special chips or interfaces and, with an introductory price of \$395, you can upgrade today and be ready for the future of Macintosh computing.

The Best Drives Imaginable

The PLI Turbo Hard Disk Drives...

Imagine 27 different hard drives, internal and external, with capacities from 20Mb all the way up to 638Mb, for the Macintosh Plus, SE, SE/30, II and IIx.

Imagine speeds below 10 milliseconds and software that drops the effective average access times to near zero.

And imagine four valuable utilities, software that boosts Macintosh performance are included at no extra charge, (TurboCache, TurboSpool, TurboOptimizer and TurboBack).

All of this is available for you at affordable prices from PLI, a company that has been making high-quality SCSI drives for the Macintosh since 1985. Imagine that.

Macintosh, Plus, SE, SE/30, II, IIx, TurboCache, TurboOptimizer, Turbo Back, TurboSpool, SCSI, IBM, and PLI are trademarks or Registered trademarks of their respective companies.

Peripheral Land Incorporated 47800 Westinghouse Drive • Fremont, CA 94539 (415) 657-2211 • (800) 288-8754 • FAX (415) 683-9713 AppleLink D0495 • Telex 650305

A PLI



Please circle 115 on reader service card.

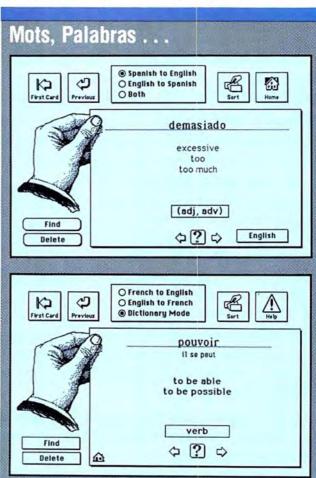
Changing your mailing address?

It's a simple procedure to ensure that your next issue of MacUser will catch up with you as soon as you move.
Please send your NEW address PLUS your current mailing label to:

MacUser

P.O. Box 56986 Boulder, Colorado 80322-6986 Please allow up to 60 days for change of address to take place.

F L A S H C A R D S



... and more words. FlashCard French and FlashCard Spanish can help you increase your vocabulary in either language. Search for a word or access cards at random. Each stack sells for \$15. Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, CA 94523; (800) 888-7667.



The Lexical Engineer-Kanji stack provides Japanese-English translations, Kana and Kanji script, grammatical notes, and digitized translations, and over 1,000 vocabulary entries that are generally found in a first-year Japanese course. It is available from Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, CA 94523; (800) 888-7667; \$30.

Don't Trust Your Data to Anyone Else

The Infinity 40 Turbo from PLI...

The removable Winchester cartridge is one of the most exciting advances in data storage technology this decade, but not everyone has mastered it. PLI has been in the drive business since 1985, was the first to offer reliable 44Mb removable cartridge drives and is the only company to offer near zero access times. PLI knows removable cartridge drives better than anybody, and when it comes to your data, you shouldn't settle for anyone but the best. PLI.

With PLI's Infinity 40 Turbo you get the fastest possible performance, unlimited storage, IBM compatibility and valuable software (including TurboCache, Turbo Spool, TurboOptimizer and TurboBack), plus PLI's experience and reliability.

You also get something even more important, peace of mind.



Software that Accelerates

TurboCache

Near zero access times make your drive blisteringly fast, while using your Mac's memory with almost 100% efficiency.

TurboSpool

Lightning-fast spooling prints all of your files, even Page-Maker documents, quickly and safely to any laser printer on a network while you work.

TurboBack

The easiest way to make fast and reliable backups; your data will never be vulnerable again.

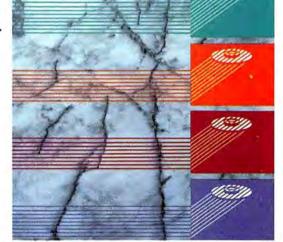
TurboOptimizer

Maintain peak drive performance. Defragment your drive in under five minutes, or optimize it for extra speed.

IBM,PageMaker, TurboOptimizer, TurboCache, TurboBack, TurboSpool and PLI are trademarks or registered trademaks of their respective companies.

Peripheral Land Incorporated 47800 Westinghouse Drive • Fremont, CA 94539 (415) 657-2211 • (800) 288-8754 • FAX (415) 683-9713

AppleLink D0495 • Telex 650305 Please circle 24 on reader service card.





PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

For Fast Service Call Toll Free, 1-800-972-5858

MAGAZINE BINDERS

Hold your issues on individual snap-on rods. \$9.95 each. 3 for \$27.95. 6 for \$52.95.



OPEN BACK CASES

Store your copies for individual reference. \$7.95 each. 3 for \$21.95.



MacUser

c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134
se send me: Quantity.

Please send me: Quantity______ Binders Cases
Payment by check or money order enclosed for \$____.*

Add \$1 per case/binder for postage and handling. (Outside USA, add \$2.50 per case/binder ordered, US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order \$15).

Card No._____Exp. Date_____

Sorry we cannot ship to P.O. Boxes. Thank you

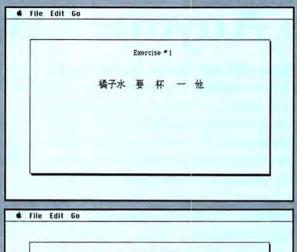
City_____State____Zi

PA residents add 6% sales tax.

HYFER

Construction Site

Work on your sentence construction in Chinese with Chinese Exercises 19A. Just click on the words in the order you believe will form a grammatical sentence. This stack of ten exercises is the first in a series so watch for more. The stack is free and can be obtained by sending an SASE and formatted disk to Daniel Dee, 357 Puffton Village, Amherst, MA 01002.



S



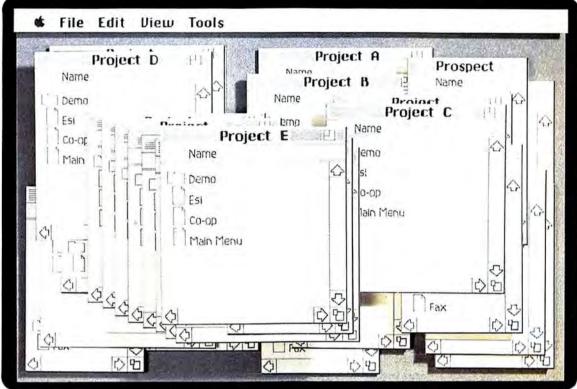
Buenos Dias!

¡Por favor! ¿Que pasa? If that's the beginning and end of your Spanish vocabulary and you would like to know more, Speed Spanish will get you up to speed pronto! The six-part method teaches you using phrases and sentences, and quizzes your progress throughout. Speed Spanish also includes a three-part dictionary consisting of phrases, verbs, and nouns. It is available for \$20 from Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, CA 94523; (800) 888-7667.





Are Your Files Stacked Against You?



Stack them in your favor with XTreeMac,™ The Complete Disk Management Environment.

With the Macintosh® it's so easy to organize files in folders. . .within other folders. But climbing through stacks of windows to get to the right file takes time. Opening. Closing. Resizing. Rearranging.

With XTreeMac¹⁹ you can perform your disk management tasks from a single window.

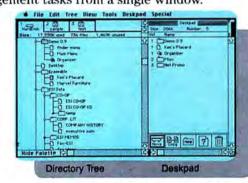
No matter where files are located — on hard disks or floppies. Disk management has never been easier.

XTreeMac's unique Directory Tree™ lets you see your disk organization at a glance.

XTreeMac's Deskpad^{TR} provides a convenient surface for gathering files, folders and applications from multiple disks.

XTreeMac is an integrated disk management application that enhances Finder. Using familiar Finder commands, you can copy, move, rename, or delete files right on the Directory Tree or Deskpad. And you can find and launch applications directly from XTreeMac. You'll save stacks of time.

If you inadvertently delete files, don't worry. XTreeMac's Revive-A-File™ recovers them. Even after you've emptied the trash or turned off the power.





See how XTreeMac stacks up to your requirements. Contact your local dealer or call XTree Company at (805) 541-0604, (800) 634-5545 or in CA (800) 551-5353.

XTreeMac, Deskpad and Revive-A-File are trademarks of XTree Company, Macintosh and Finder are registered trademarks of Apple Computer, Inc.

PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

For Fast Service Call Toll Free, 1-800-972-5858

MAGAZINE BINDERS

Hold your issues on individual snap-on rods. \$9.95 each. 3 for \$27.95. 6 for \$52.95.



OPEN BACK CASES

Store your copies for individual reference. \$7.95 each. 3 for \$21.95.



MacUser

499 East Erie Avenue — Philadelphia, PA 19134
Please send me: Quantity _____ Binders Cases
Payment by check or money order enclosed for S _____**

Add \$1 per case/binder for postage and handling. (Outside USA, add \$2.50 per case/binder ordered, US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order \$15).

Card No._____Exp. Date_____

Name____

Sorry we cannot ship to P.O. Boxes. Thank you.

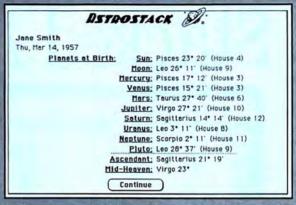
City_____State____Zip_

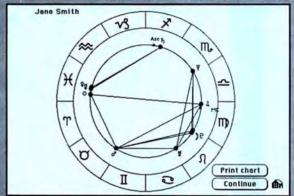
PA residents add 6% sales tax.

F L A S H C A R D S

It's Astronomical

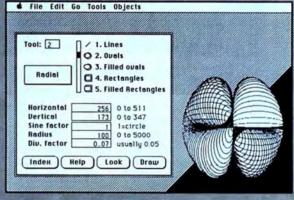
AstroStack performs a complicated series of astrological calculations, including planetary positions, "aspects" between planets, and "progressions" for any time in the subject's life. This one is for the pros. This stack is shareware (\$15) from Bruce Pirie, 861 Windermere Ave., Toronto, Ontario, Canada M6S 3M5.





Child's Play

CompuArt makes creating intricate-looking geometric designs seem like child's play. Change parameters to produce designs for use as Adobe Illustrator templates. CompuArt costs \$20 from Services TKV, 1381 Notre Dame West #1, Montreal, Quebec, Canada H3C 4J6.



# File Edi	t Go Tools Objects
	Radial Help
This tool drai	ws radial diagrams.
Horizontal	
This is the ho from 0 to 51	orizontal center location of the diagram. Enter a number
Vertical	
This is the ve	ertical center location. Enter a number from 0 to 347.
Sine factor	
	ne argument multplier.

It's a 10.7 ms Wren!

Baby's Name: Wren Runner, V

Sex: SCSI

Weight: 330 MBytes

Time: 10.7 ms Average Access Time

<u>Delivered By:</u> MicroNet Technology, Inc.

Proud Parents: Control Data Corporation/Imprimis Technology Visiting Hours: Anytime. Call Your Dealer For Appointment.



Wren Runner - 10.7 ms - SCSI Hard Disk Drive

MicroNet's Ili-330 or SBX-330, developed around the new Imprimis Wren Runner, 330 MB, 10.7 ms drive, is the fastest SCSI hard disk drive available. Best used with a Mac II or a Mac IIx running disk intensive applications.

150, 300, 600 MB - 16.5 ms, Wren III, IV and V

MicroNet specializes in Control Data/Imprimis drives that are industry known for their reliability and speed. Internal and external systems with tape combinations available.

Micro/Stack Series - 30 to 173 MB Systems

MicroNet offers 30, 46, 62, 80, 88, 173 MB, fast access hard disk drives in our zero foot print cabinet for the Mac Plus, SE and II. Plus our 60 MB or 150 MB streaming tape and 45 MB SyQuest removable cartridge systems.

Micro/Internal Series - 30 to 600 MB

We offer a complete range of internal systems for the Macintosh SE and II, built around hard disk drives made by Conner, Quantum and Imprimis Technology.

We are dedicated Macintosh <u>only</u> developers. Data sheets gladly sent on request.

Our products are sold through dealers only. Dealer inquires invited.

Charles F. McConathy, President





MicroNet Technology, Inc.

13765-A Alton Parkway • Irvine, CA 92718 • Te FAX: (714) 837-1164 • AppleLink: D1656 • Co

Telephone: (714) 837-6033Compuserve: 76004,1611

CONNECTIVITY • SYSTEMS • WORKSTATIONS • INTERFACES

elcome to Bridges, the newest addition to MacUser. Each month Bridges will examine connectivity and networking, operating systems, workstations, and human interface issues.

> Bridges will be the place to look for the latest on AppleTalk, Ethernet, Token-Ring, network file system (NFS), and Open Systems Interconnection (OSI) networks; A/UXiliary Information, MacUser's ongoing coverage of A/UX; the Apple-DEC alliance; IBM mainframe connections; DECwindows, Open Look, and MacX; Display PostScript; and the news from Apollo, Sun, and NeXT.

> ■ ■ ■ ■ Each month we will report the latest news and rumors and apply a critical eye to indepth product reviews. This month we offer a look at Liaison, a low-cost software AppleTalk bridge from Infosphere. Trouble Shots, by Kurt VanderSluis of The Network Group (a Seattlebased consulting company), will offer advice on how to iron the kinks out of your AppleTalk network. Kurt will share his expertise from

years in the AppleTalk trenches with Farallon Computing. In his first installment, Kurt tells you how to exorcise the gremlins responsible for ghosting.

Let us know what you think. Send your thoughts, tips, trials, and tribulations to Bridges, c/o MacUser, 950 Tower Lane, 18th floor, Foster City, CA 94404.

NetWare for Macintosh Ships

The big news is that Novell's NetWare for Macintosh finally shipped. This longawaited addition to NetWare adds AppleShare compatibility to one of the most popular

DOS network systems around. With NetWare 2.15 and NetWare for Macintosh, Mac users can access NetWare file servers just as they would any other AppleShare server.

The NetWare Operating System runs on a dedicated PC or clone. Each such server can support up to four con-

nected networks, and there is virtually no limit to the number of servers that can be connected. NetWare has already distinguished itself by supporting dozens of different PC networks, including Token-Rings, Ethernet, and ArcNet. With the release of NetWare for Macintosh, LocalTalk and EtherTalk networks join the list.

Macintoshes and PCs on all these types of networks can share files on a NetWare server as easily as two Macintoshes share files on a Mac-based AppleShare server. However, PCs on other NetWare networks cannot access AppleShare servers on Macintosh networks connected to the same NetWare server. Note that all this works only for servers running NetWare 2.15. NetWare also lets workstations on different networks share PostScript printers.

NetWare's eight levels of file security are transparently mapped into the standard See Folders, See Files, and Make Changes dialog boxes familiar to AppleShare users. Net-Ware also provides password protection for its servers. This is retained in NetWare for Macintosh.

NetWare for Macintosh is only \$200 per user site. You can install it on as many servers as you like at the same location. But first you need

the NetWare Operating System, version 2.15. For the

moment, NetWare 2.15 is available only on the most expensive NetWare option, System Fault Tolerant Net-Ware. The cost of a new copy of this software package is \$3,695. You can upgrade from 2.1, 2.11, or 2.12 for \$1,175. In addition, you have to find vourself a 286 or 386 PC or clone to run it on. Version 2.15 of Advanced NetWare (\$2,995) and Entry Level NetWare (\$1,495) will be available sometime in the first & quarter of 1989. We'll be giving NetWare a full workout and a full review in an upcoming Bridges. - Henry Bortman



Security and Acceleration

The DPI Security Line

If information is more precious than money, and in many instances it is; why not let DPI's new security line put your's under lock and key.

Our newest removable provides security, speed, and interchangable modules, giving you the newest advances in removable hard drives.

So why limit yourself to fixed boundaries when you can take advantage of the newest technology available, "Removable modules".

With DPI's new security line your Data is always under lock and key.





Please circle 126 on reader service card.

Introducing SuperCharger/SE

The 16MHz 68000 based accelerator board that doubles the speed of your Macintosh SE. It's fully compatible with all Macintosh SE software, and can be turned off

via the Control Panel for speed sensitive applications.

To take advantage of the new technologies in data storage and high-speed performance, call DPI. We offer a free technical support hotline and a 30-day, unconditional money-back guarantee. Improve your productivity with DPI, today. To order, call (800) 825-1850 and don't wait.



40 Corning Avenue, Milpitas, CA 95035 • FAX (408) 947-8148

(408) 945-1850 (800) 925-1850

*For a limited time only. Prices quoted are for cash purchases. Ca. residents add 7% sales tax. Shipping not included. SuperCharger/Se and Macintosh are registered trademarks of their respective companys. Prices subject to change

THE LIFE'S IN THE LIFE SHIPLY

Team up your Macs and PCs for LAN-based 3270 access.

The Netway³⁸ 1000/PC. It's a vision that's become reality. The first SNA gateway offering total access to the 3270 world for every workstation in your corporate workgroup.

The best of both worlds. Bring together the sophistication and flexibility of the LocalTalk™ LAN with the power of an IBM® host. With the Netway 1000/PC, every IBM PC (or compatible), along with all the Macintoshes in

your LocalTalk workgroup, can

Multisession capability.

The Netway 1000/PC is the only SNA gateway that permits users to be logged on to as many as six host sessions on the PC and up to eight host sessions on the Macintosh. On the PC you can toggle in and out of sessions via a hot-key sequence. With MultiFinder™ on the Macintosh, you can window host sessions and Macintosh applications concurrently.

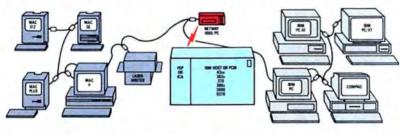
And because it functions as a 3274 gateway, the Netway

prised. For a workgroup of 16 Macs and PCs, the Netway 1000/PC costs less than \$250 per active 3270 workstation session.

From the leader in micro-to-mainframe communications.

The Netway 1000/PC is the latest in the Netway 1000 family of products, which have been serving business and government connectivity needs for more than two years.

Contact us about our demo program and connect your Macintoshes and PCs to your IBM host today.



get full 3270 workstation emulation with a wide range of features such as color and API support. All this in a multivendor LAN environment. And Netway's industry-standard file-transfer support means your Macs, PCs and mainframe can exchange text, Mac or IBM PC application files with ease.

1000/PC can easily handle 16 host sessions from different workstations in the LocalTalk workgroup.

High end solutions, low end costs.

With all its high end features, you'd expect the Netway 1000/PC to carry a price tag to match. But you'll be pleasantly sur-

TRI-DATA

Systems, Inc.

Tri-Data Systems, Inc. 1450 Kifer Road Sunnyvale, CA 94086-5306 Telex: 172282 AppleLink: DO120 Fax: (408) 746-2074 Tel: (408) 746-2900

Please circle 48 on reader service card.

©1988 Tri-Data Systems, Inc. Netway is a registered trademark of Tri-Data Systems, Inc. Macintosh is a trudemark ticensed to Apple Computer, Inc. MultiFinder and LocalTulk are trudemarks of Apple Computer, Inc. IBM is a registered trudemark of International Business Machines Corporation.



I hate Murphy. When I was a young engineering student, I read Ayn Rand's *The Fountainhead*. I wanted to be a heroic engineer like Rourke and make perfect designs using materials that would never rust. I thought if only I consid-

ered every aspect of how an object would be used, I could design a way for the object always to be perfect.

In practice, however, Murphy and his law were dead-on. Everything fails — and usually does so at the most critical time. We cannot shrink from our obligation to design reliable networks, but we have to acknowledge that at some point, they will stop working. When that happens, someone must fix them. To fix a network, you first have to find out what's broken.

There are a number of ways to notice a network problem, but they all have one thing in common — something happens that folder. These are INITs that enable the Mac to respond to the query. A device that is powered off or does not have one of these INITs installed cannot respond. A list of all the devices that respond will appear on your screen. Print it out and save it. It's a good idea to repeat this procedure every time your network changes significantly.

Now suppose one of your printers or AppleShare file servers suddenly "disappears" from the Chooser. After checking the obvious — it's plugged in, turned on, and appears to be connected properly to the network — run CheckNET or Inter•Poll again. Then compare the problem list with the healthy list. Either the lists are the same, the problem list has no entries, or the lists are different.

If the two lists are the same, you know there is no trouble with the logical network. In this case, the trouble is generally connected with either a software configuration problem or a user's lack of understanding of the proper procedure. (Future articles

The Ghost in the Machine

is different from what you expect. Perhaps it takes much longer to print than you expect, or the file server seems to be missing, or you can't connect with the mainframe.

Often, if you're familiar with the network and how it is set up, you'll have an idea of where the problem lies. In other cases, you'll have to figure it out. That's where troubleshooting comes in. Troubleshooting is an orderly way of locating the broken part of the system and fixing it. We'll begin by looking for problems on the lower layers of the network — the data-link layer, where we will observe the logical connections between devices, and the physical layer, the wires and electrical connections.

Troubleshooting starts by comparing how the system behaves when it's not working with how it behaves when it is.

Rule No. 1 of troubleshooting is to know how everything is supposed to look. So before a problem occurs, you want to observe the network in a healthy state, using the same tools you'll use again later when you have a problem. The tools you need to troubleshoot the data link layer are CheckNET from Farallon Computing or Inter•Poll from Apple. For the physical layer, you'll use the StarCommand desk accessory — if you have a Farallon Star-Controller — and an ohmmeter.

The first observation to make on your healthy network is what devices are logically visible. Both CheckNET and Inter•Poll send out a query to all the devices on the network. Any device that receives the query will respond by giving its device name, device type, and network address. Make sure all the devices on the network are powered up before doing this check. Also you must have either RegisterName or Responder in each System.

will focus on troubleshooting these higher level network functions.)

If there are no devices on the list, make sure your AppleTalk connection is plugged in and that AppleTalk is activated in the Chooser.

If there are some devices on the list but not all that appear on the normal list, and you're sure that all the devices are powered up, you must look to the physical network. Now the task becomes finding the physical location of the problem.

Keep CheckNET or Inter•Poll running for a while and watch the display. Both programs will update the screen every few seconds. Are there some devices that seem to come and go from the list? This is called *ghosting*.

> If the devices are not ghosting but are simply not present, then you may look for shorts or breaks in the network wire near the missing devices. Perhaps the wires have become unplugged or are connected improperly.

> If they are ghosting, there are two likely causes. The first is that the total length of your network is too great and the signal reaching your Macintosh from the ghosting devices is weak. Perhaps you have intentionally run your network wiring farther than the manufacturer recommends. Or you may not realize the wiring is too long, because it's routed inside the wall where you can't see it. In either case, it is never wise to exceed the manufacturer's specifications. Your phone installer might be able to suggest a reroute. Or you may want to add a StarController to help pump the signal to all the places it has to go.

The second cause of ghosting is reflec-



THE BEST TYPE BOOK MONEY CAN BUY.

This priceless professional tool is yours *free*. Simply mail the coupon below or call Adobe Systems toll-free at 800-83-FONTS.

Adobe, developer of the Adobe Type Library and PostScript' software, is the world's authority on electronic publishing.

This full-color, 11"x15", 32-page Font & Function" catalog is jampacked with helpful tips and problem-solving advice from Adobe type and design experts. Plus, it's got samples, interviews and more than 300 high-quality Adobe type-faces for you to order. You'll see





how easy it is to publish like a pro with your Macintosh' or IBM' PC computer, PostScript printer and a little help from Font & Function, the Adobe Type Catalog.

Get yours today. FREE. Just call 800-83-FONTS. Or write Font & Function, P.O. Box 7900, Mountain View, CA 94039-7900.



Adobe and Post Script are registered trademarks and the Adobe logo and Font & Function are trademarks of Adobe Systems Incorporated, Macintosh is the registered trademark of Apple Computer, Inc. IBM is the registered trademark of the strength Business Machines

FREE.

To receive your free Font & Function Adobe Type Catalog, mail to: Font & Function, P.O. Box 7900, Mountain View, CA 94039-7900. Please allow 4 weeks for delivery.

I use a ☐ Macintosh ☐ IBM PC computer (Check appropriate box[es])

NAME			-
TITLE			-
COMPANY			_
ADDRESS		CITY	-
STATE	ZIP	PHONE	_ 1

Changing your mailing address?

It's a simple procedure to ensure that your next issue of MacUser will catch up with you as soon as you move.

Please send *your* NEW address PLUS your current mailing label to:

MacUser

P.O. Box 56986

Boulder, Colorado 80322-6986 Please allow up to 60 days for change of address to take place.



tions in your signal. Reflections are like echoes. Humans have a great ability to figure out what was said in spite of echoes. Computers are not so good at it.

Small reflections are caused by changes in impedance (re-

sistance) in the wire along its length. You can have changes in impedance when the network wire changes from one wire type to another (for example, going from Apple's shielded LocalTalk wire to Farallon's unshielded telephone wire through an adapter) or from one wire



gauge to another (e.g., going from 22 AWG wire running around a building to 26 AWG jumper wire in the phone closet). It can also happen when there are kinks in Apple's LocalTalk wire.

Small reflections usually cause small problems, but once in a while they will add up in some combination to give you big trouble. Large reflections occur when a wire has not been properly terminated. This will almost always cause problems. Next month we'll look at how to use an ohmmeter and — if you have a StarController — the StarCommand desk accessory to troubleshoot reflection problems.

In the meantime, a word to the wise:
Don't push your network beyond its recommended limits. If your connector vendor says that the network can be 3,000 feet long, that doesn't mean that 3,001 won't work. But beyond the stated limits, there is a sieve. The further you push the design, the coarser the sieve becomes and the more leaks through and gets lost. Work within manufacturers' specifications, even if you have to spend a little more money. The reliability bonus you get will be well worth it.

With MacMainFrame, its so easy to access an IBM mainframe, a mouse could doit.

If you're like most Macintosh users, one of the reasons you got hooked on the Macintosh in the first place is that it's so easy to use.

Which is why you'll be happy to know that now you can use any Macintosh, from the 512Ke to the Macintosh II,

to access any IBM® mainframe with scarcely more than the click of a mouse.

MacMainFrame™ is a Macintosh-to-IBM mainframe link

that puts your Macintosh and your mainframe on speaking terms.

MacMainFrame gives you complete Macintosh-to-mainframe functionality including file transfer.

You can access the host remotely from your satellite or home office. Or from client sites.

And because MacMainFrame builds on the flexibility inherent in your Macintosh, you can even create your own personal operating environment. With convenient features that include everything from keyboard remapping to user-definable screen colors.

In all candor, when it comes to

connecting
the Macintosh
with IBM, no other
Macintosh-to-mainframe
link is as true to the

Macintosh ideal as MacMainFrame.

For the authorized MacMainFrame dealer or distributor nearest you, call 1-800-289-2526, extension 27.

Or write to Avatar Corporation,

65 South Street, Hopkinton, MA 01748.

Avatar

Please circle 146 on reader service card.

Now Macintosh II users can run up to five host sessions simultaneously with MacMainFrame/DFT.



Use Daily To Prevent Network Decay.

It used to be a fact of life: as the size of your PhoneNet® or AppleTalk® network went up, its performance went down. But the Shiva NetBridge has changed that for good. Just plug one in every 10th

"Best value in AppleTalk bridges"

- MacWEEK

node or so and you'll keep all the performance you paid for. Because the NetBridge maintains performance by reducing network congestion. You can plug in additional NetBridges to build an expanded 'internetwork,' including hundreds of Macs and

peripherals. It's as easy to manage as it is to set up. The NetBridge lets you define, add and delete internetwork 'zones' to match workflow or office layout. You can also control file and peripheral access privileges zone by zone. And even get a quick status report on your entire network or any part of it. You can see at a glance how many devices are connected and where they are along the internetwork. Get all the network performance you paid for with a Shiva NetBridge. Call 1-800-458-3550, or write Shiva, 155 Second St., Cambridge, MA 02141, for the name of your nearest Shiva dealer.



We're Putting Networks To Work™

Trademarks NeiBridge - Shira Corporation Hegistered Trademarks Apple Talk - Apple Computer Inc. PhoneNet - Farallon Computing, Inc.

Please circle 193 on reader service card.

What do you get when you cross a Kinetics FastPath, a Hayes InterBridge, and a Shiva NetModem? You get Liaison, a \$295 software package from Infosphere.

Liaison enables you to create AppleTalk bridges between two LocalTalk networks, between a LocalTalk and an Ether-Talk network, or between two networks connected remotely over dial-up phone lines. All without any special hardware.

How does it do that? First a little background. When you connect two networks, you need some kind of a router, or *bridge*. The job of the bridge is to keep track of which devices are on which network and to route network traffic appropriately.

to the primary bridge, courtesy of the same single copy of Liaison. Over this link, I was printing a file to a LaserWriter connected to the EtherTalk server. (This required a second copy of Liaison running behind the server to bridge from EtherTalk on the server to the printer, which supports only LocalTalk.)

Then I opened Word 3.02 on the primary bridge and started typing. Not only did I never lose a character, but the screen almost never lagged behind my keystrokes. (I type 80 words per minute.) Liaison allows you to give priority either to the background bridge process or to the foreground task. Whichever way I had it set, my typing was unaffected. I don't know how Infosphere did it, but they did it right.

There was a noticeable delay opening and saving files when the bridge process had priority, but it was still tolerable. For graphics applications, however, you'd want to give the fore-

Liaison: A Flexible Flier

Most vendors implement a bridge with specialized hardware, which contains a custom chip that knows how to perform only one specific bridging task. For example, an InterBridge can bridge one LocalTalk network to another.

Liaison takes a different approach. It turns your Mac into a bridge and runs the bridge process in the background. This has two advantages. It's cheaper — no extra hardware — and it's extremely flexible because the Mac's general-purpose CPU can be programmed to perform any bridging task. Liaison can even bridge LocalTalk to ArcNet (although we didn't get a chance to test this). And when TokenTalk (Token-Ring AppleTalk) comes along, Liaison will be ready and waiting.

Fine, you say, but anyone who's used PrintMonitor will be wary of trying to get work done on a Macintosh with a network process going on in the background — which is why Infosphere recommends running Liaison behind an AppleShare server, rather than a workstation. The impact on server performance is negligible.

ground task priority to avoid an annoying delay (several seconds) in redrawing the screen.

Doing It

Setting up Liaison is a snap. You drag it into your System folder and reboot. It's installed and appears in the Chooser (see Figure 2).

The three pop-up menus in the Preferences dialog box allow you to bridge up to three networks. Usually you will select LocalTalk for the printer port. By selecting LocalTalk for the modem port as well, you can bridge two LocalTalk networks. Alternatively, you can configure the modem port for a dial-up connection, as shown in Figure 3. If you have an Ethernet connection, "Other ports" allows you to select EtherTalk as well.

The Network Services dialog box lets you name and assign network IDs to the various networks you have just configured. If you don't specify them, Liaison will assign them for you the next time you reboot. But you need to watch out: There are a few gotchas.

Gotcha No. 1: For some reason Infosphere can't explain, Liaison sometimes has trouble automatically assigning a name to a dial-up network. You're safer entering it yourself.

Gotcha No. 2: Whichever Liaison-configured Mac gets turned on first gets to establish, for other bridges on the network, the names and IDs of the networks it's connected to. Any bridges turned on after that, if they're on the same network(s), pick up net names and IDs from the bridge that got there first. So if you turn on the wrong one first, you just shut down, start the other bridge, then restart the first machine, right? Wrong. This works only for Mac IIs. A Shut Down command from any other machine leaves Liaison running in the background. Unless you are using

The Torture Test

But suppose that, for whatever reason, you need to run Liaison on a workstation. I tried it (see Figure 1). I set up two networks — one LocalTalk, one EtherTalk — each consisting of five workstation nodes (I'll call these data workstations) and one AppleShare server. I bridged the two networks with Liaison, running on another workstation (I'll call this the primary bridge) that was physically connected to both nets. All the data workstations were running a 4th Dimension program that, every 20 seconds, made a database request of the server on the opposite network. So all these data packets were going through the primary bridge.

Simultaneously, I had a dial-up connection



a Mac II, you must physically turn off your Macintosh to kill Liaison.

Gotcha No. 3: Liaison lets you enter an asterisk (*) for a zone name. Doing this tells

you enter an asterisk (*) for a zone name. Doing this tells Liaison: "Get your name and ID from another bridge, not

from me." This is a way around the confusion that can arise on large networks, where you don't want zone names to change every day depending on which machine starts up first. However, when an asterisked Liaison gets booted up, if there is no other bridge process running from which to get a name and ID, Liaison won't make one up and go into action. It

Liaison: The Torture Test

lines). Simultaneously, I made a dial-in connection through the primary bridge and then through a second Liaison bridge to print a file on a LaserWriter connected to the

EtherTalk server (dashed yellow line). With all this activity in the background on the primary bridge, I didn't notice any degradation in screen response when typing at 80 words per minute in the foreground. will simply not activate.

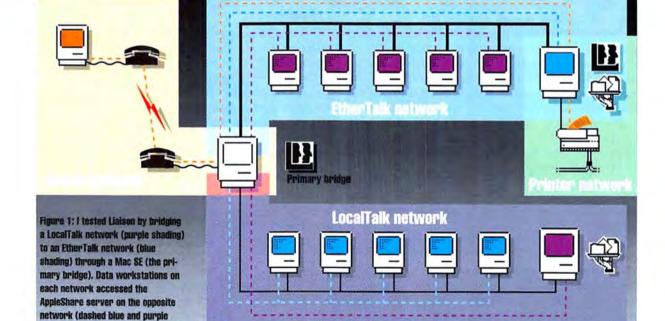
The moral: Carefully plan where you put your Liaison bridges and how you set up network names and IDs, or you could get got.

Keeping Secrets

Liaison provides excellent security. You can assign a password to the Liaison Chooser icon itself. No password, no access to Liaison functions. In addition, robust security is provided for dial-in access.

The Authorized Users dialog box (see Figure 4) is where dial-in users are given their rights. Each user can be assigned a password. In addition, for each dial-in user, access can be restricted to a single node, a zone, or the entire internet. This goes far beyond the security other dial-in AppleTalk bridges provide. With Liaison, for the first time, you can "hide" resources on your network — for example, a Linotronic — that you don't want dial-in users to access.

But unlike hardware dial-in bridges, Liaison doesn't require you to leave the resources of your own network behind when you dial into another net. For example, with a NetModem, if I dial into MacUser's network from home, I have to say good-bye to my LaserWriter. Liaison lets me have simultaneous access to the resources of both my printer at home and



MARK W. SWEENEY / MACUSER

Looking into CAD?

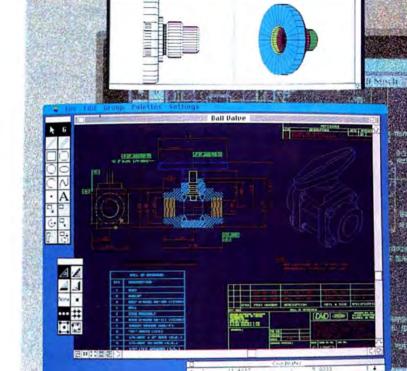
See how VersaCAD on the Macintosh stacks up . . .

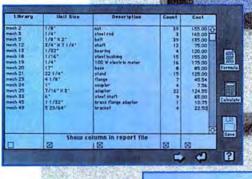
When it comes to professional CAD on the Macintosh®, only VersaCAD® offers a complete solution. Now in its fourth release, this bestselling software gives you high-precision color graphics . . . plus unique design capabilities based on Apple Computer's HyperCard™ information management tool.

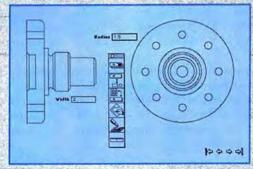
- 2D drafting rated "Best" at the National Computer Graphics Association shootout
- 3D color shading that's fast and easy, including multiple viewport display
- Exclusive HyperCard stacks for:
 - · Bill of materials
 - · Parametric design
 - · Off-line plotting
 - Attribute database
 - CAD text processor
 - Drawing manager, and more.
- Proven two-way links to PC-CAD, workstations and thousands of productivity programs.

See for yourself how VersaCAD stacks up. Return the coupon for a free demo disk or call (714) 960-7720 today.









YES, send me a free demo disk (requires a Macintosh Plus or greater).
Name
Title
Company
Address
City/State/Zip

Please send to Demo Disk, Versacad Corporation, 2124 Main Street, Huntington Beach, CA 92648.

Please circle 103 on reader service card.

BRIDGE

the network I am dialing into at work.

When you use Liaison to connect two networks over phone lines, you can choose between a private and a shared connection. With a shared connection, anyone on the network

of the dialing Mac automatically gains access to the resources of the network dialed into. With a private connection, only the Mac dialing out gains access to the resources of the network at the other end of the line. Liaison also allows multiple nodes on a network to share a single modem for dialing out to another net. The Authorized Users dialog box lets you specify on a per-user basis who may share the modem.

So perhaps now you're thinking, "This seemed like a good deal at first, but at \$295 a node, it could get expensive pretty fast." Ah, but not every node has to run its own serialized copy of Liaison in order to use the program's services. Liaison ships with LiasonNet, which can be copied freely and provides a subset of Liaison's functions sufficient for most nodes. Only those nodes actually running a bridge process or providing shared dial-out capability need Liaison proper.

Another gotcha: For dial-up connections, Liaison has an extensive initialization sequence that gets sent to the modem at startup time. But if for some reason the modem gets reset after that, Liaison may not reinitialize it. The manual recommends a roundabout way of forcing modem initialization; the most effective seems to be starting a telecommunications application and quitting it. When the program quits, Liaison will initialize the modem properly. By the way, Liaison will not talk to NetModems or other similar devices. It will, however, work with any telecommunications program that uses the serial port properly.

Parting Shots

I have found Liaison to be more reliable than a NetModem for dialing into the MacUser network from home. With a NetModem, about one out of three calls fails to go through, often for reasons I can't explain. Liaison works every time.

The manual is strong on explaining

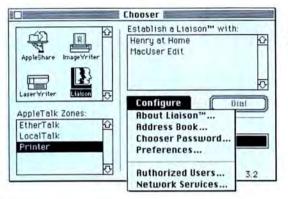


Figure 2: Liaison appears in, and is configured within, the Chooser.

Messages:	□ Report connection ch □ Terminate idle remote		
Printer port:	LocalTalk]	1200 2400
Modem port:	Hayes 2400 - U9600	at	✓ 4800
Other ports:	EtherTalk		9600 19200
Startup:	☐ Auto-connect to sele	cted	site.
	Save Changes		Cancel

Figure 3: The pop-up menus in the Preferences dialog box allow you to select up to three networks to bridge. Shown here are the networks connected in the primary bridge from Figure 1.

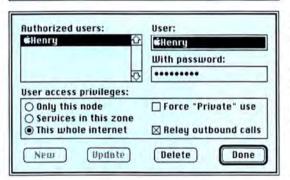


Figure 4: Each dial-in user must be authorized individually and can be assigned a personal password. The ability to restrict dial-in users to access to a single node or zone is a security feature unique to Liaison.

difficult networking concepts with simple language and clear pictures, but it's short on examples and troubleshooting tips.

The technical support is excellent. The folks at Infosphere know how their product works, and when you call them with a problem, they take the time to make sure you know how to get the most out of it.

Liaison is compatible with Timbuktu and TOPS; I'm told that it works with QuickMail as well, although I didn't get to try it. And for those of you who already have other bridges on your nets and need to add more, Infosphere says you shouldn't have any problem.

This is a brilliant piece of programming at a great price. If the time has come to add bridges to your network, look to Liaison first.

Follows Mac Interface Printed Documentation On-Screen Help Performance Support

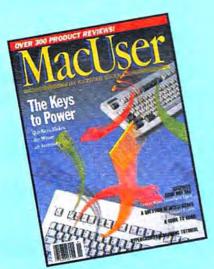
Consumer Value

Comments: The first AppleTalk bridge implemented in software. Supports LocalTalk to LocalTalk, LocalTalk to EtherTalk and remote dial-in bridges — without any special hardware.

Best Features: Flexible; reliable; excellent dial-in security. Worst Feature: Manual could use a troubleshooting section. List Price: \$295. Published by Infosphere, Inc., 4730 S.W. Macadam Ave., Portland, OR 97201; (503) 226-3260. Requires Mac 512KE and up. Version 1.0 reviewed. Protected with serial numbers.

State-of-the-Art Input for the State-of-the-Art Computer...

MacUser The Macintosh Resource





Subscribe today, save up to 50% and get MacUser's NEW HyperDisk—FREE—with your paid subscription! This great software will turn you into a HyperCard Super-Stacker fast. Features cut and splice utilities, custom font, zany sound effects, animated cursors and buttons, and much, much more.

And it's yours FREE!

For Greater Performance

	EE HyperDisk and begin my	subscription	110
	es) for \$19.97—a 44% SAVING	GS!	acUser
	ies) for \$35.40—a 50% SAVII	NGS!	PER-
Savings based on annu	ual single-copy price of \$35.40.		ISK
MR./MRS./MS.	Please print full name		
COMPANY			
ADDRESS			
CITY	STATE	ZIP	4582
☐ Payment enclosed	☐ Bill me later		
Please allow up to 60 days for de Basic annual subscription price is	elivery of first issue. Add \$18 per year for po 8 \$27. Your HyperDisk will be shipped upon	stage outside USA Upayment.	S currency only
For Gre	ater Perfo	rma	nce
	E HyperDisk and begin my	subscription	to
MacUser for:		M	acUser
	s) for \$19.97—a 44% SAVING	38!	DED.
	ies) for \$35.40—a 50% SAVII ual single-copy price of \$35.40.	NGS!	
Savings based on anno	tial single-copy price of \$55.40.		SK
MR./MRS./MS.	Please print full name		
COMBINE			CONTRACTOR STATE
COMPANY			
COMPANY ADDRESS			
	STATE	ZIP	4S82
ADDRESS	STATE Bill me later	ZIP	4582
ADDRESS CITY Payment enclosed Please allow up to 60 days for de		ostage outside USA. U	4582
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is	☐ Bill me later	stage outside USA. Upayment.	
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is	Bill me later clivery of first issue. Add \$18 per year for pos \$ \$27. Your HyperDisk will be shipped upon	stage outside USA. Upayment.	'S currency only
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Period Perio	Bill me later elivery of first issue. Add \$18 per year for pos \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for Two years (24 issues) f	estage outside USA. Upayment.	'S currency onl
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Period Perio	Bill me later elivery of first issue. Add \$18 per year for pos \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for Two years (24 issues) f	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin	Bill me later elivery of first issue. Add \$18 per year for pos \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for Two years (24 issues) f	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin To: MR./MRS./MS. COMPANY	Bill me later elivery of first issue. Add \$18 per year for poss \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for Two years (24 issues) fings! \$35.40—a 50% Saving	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin TO: MR./MRS./MS. COMPANY ADDRESS	Bill me later elivery of first issue. Add \$18 per year for poss \$27. Your HyperDisk will be shipped upon effect Gift HyperDisk and begin a gift for Two years (24 issues) frigs! \$35.40—a 50% Saving	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin TO: MR./MRS./MS. COMPANY ADDRESS	Bill me later elivery of first issue. Add \$18 per year for poss \$27. Your HyperDisk will be shipped upon effect Gift HyperDisk and begin a gift for Two years (24 issues) friggs! \$35.40—a 50% Saving	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin To: MR./MRS./MS. COMPANY ADDRESS CITY SIA	Bill me later elivery of first issue. Add \$18 per year for poss \$27. Your HyperDisk will be shipped upon effect Gift HyperDisk and begin a gift for Two years (24 issues) friggs! \$35.40—a 50% Saving	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savinto: MR_MRS_MS. COMPANY ADDRESS CITY SIA SEND GIFT CARD FROM	Bill me later elivery of first issue. Add \$18 per year for pos \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for	estage outside USA. Upayment.	to
ADDRESS CITY Payment enclosed Please allow up to 60 days for de Basic annual subscription price is For a Pe YES! Rush a FREE MacUser for: One year (12 issues) \$19.97—a 44% Savin TO: MR./MRS/MS. COMPANY ADDRESS CITY SIA SEND GIFT CARD FROM MR./MRS/MS.	Bill me later elivery of first issue. Add \$18 per year for pos \$27. Your HyperDisk will be shipped upon Effect Gift HyperDisk and begin a gift for	estage outside USA. Upayment.	to

Please allow up to 60 days for delivery of first issue. Add \$18 per year for postage outside USA. US currency only. Basic annual subscription price is \$27. The HyperDisk will be shipped upon payment.



BUSINESS REPLY MAIL

FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. Box 52461 Boulder, CO 80321-2461

<u> Արևլիստիիսի իրիկորի հարկանին անիստինակի</u>



BUSINESS REPLY MAIL

FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. Box 52461 Boulder, CO 80321-2461

<u> Մոհվիոսվիունիովիսինիսիվիոսվիսի</u>



NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

ՈսևՈստՈստենաՄահեն հենաՈւնա

P.O. Box 52461 Boulder, CO 80321-2461



Plug More Power into Your MAC Every Month with MacUser and Save Up to 50%!

- Exclusive benchmark test evaluations and comparisons from MacUser Labs!
- Hands-on tutorials!
- Hundreds of product reviews in every issue!
- In-depth coverage of all Macintosh applications including desktop publishing, graphics, telecommunications and more!
- Comprehensive and useful power-user tips and procedures!

EXCLUSIVE BONUS ONLY FOR NEW SUBSCRIBERS! We will send you—absolutely free-MacUser's NEW HyperDisk with your paid subscription. This exclusive software will let you script your own unique stacks with professional style. Features utilities that let you split and solder stacks, work in a custom font, control your stacks with exclusive animated buttons and cursors, install special sound effects and much more—and it's yours FREE!

Pop Quiz. Stop. This is a test. For the next 60 seconds, we will be conducting a quiz about Macintosh®II Videographics. Do not turn the page until you have looked at the visual clue and answered all the questions.

Which Macintosh II graphics card offers the widest range of capture and display resolutions—NTSC, PAL, Apple® Monitor, hi-res, interlaced, non-interlaced and other modes?

a) NuVista 2M b) NuVista 4M c) All of the above

Name the only videographics card which provides true-color, real-time capture and broadcast-quality display while occupying only a single slot in a Macintosh II.

a) NuVista 2M b) NuVista 4M c) All of the above

Which videographics card offers full QuickDraw™ compatibility at 1,2,4,8,16 or 32-bits per pixel?

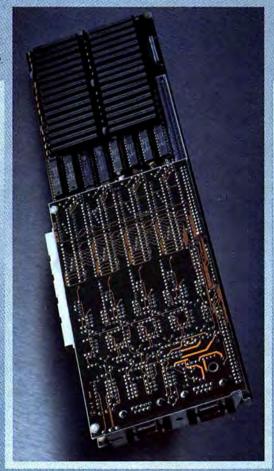
a) NuVista 2M b) NuVista 4M c) All of the above

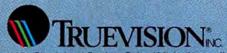
Visual clue for Videographics test.

If you chose (c) on all three questions, congratulations! You know that the NuVista series from Truevision is the answer to all your advanced videographics needs. The NuVista is available with either 2Megabytes or 4Megabytes of video memory, and creates professional video effects and computer graphics using any QuickDraw compatible software, now and in the future. No patches, no gimmicks, no hassles.

So whether your application is video production, digital prepress, presentation graphics or 3D renderings, you'll find the NuVista will pass *your* test with flying colors. Oh, and if you answered (a) or (b) to any question above, give yourself half credit. Then obtain even more NuVista information by requesting a copy of our educational brochure True answers. or visiting your local Authorized Truevision Reseller. Either way, you can find all the answers with a NuVista. Call us at 800-858-TRUE.

You may now return to your regular reading.





7351 Shadeland Station, Suite 100, Indianapolis, IN 46256 INTERNATIONAL: Canada 416/499-9400 France 33-13-952-6253 Italy 39-2-242-4551 Switzerland 41-1-825-0949 U.K. 44-1-991-0121 West Germany 49-89-612-0010 Other 617-229-6900

Apple and Macintosh are registered trademarks and Quick Draw is a trademark of Apple Computer. Truevision is a registered trademark and NuVista is a trademark of Truevision, Inc. # Truevision Inc. 1989

"Buy it right, or,

we'll take it back."

We'll do everything we can to get you the right software at the right price. And, if it turns out to be something you don't want, we'll take it back. Our Proof of Performance Pledge is unique in the industry. Buy any program you need. If you decide you don't like it, send it back, and pay only the regular daily trial. You can buy at discount, mailorder prices, and still be sure you're not going to get stuck. And, we have a 30-day money-back guarantee on all hardware, too.

ACCOUNTING

Doonle wou'll lil

n't be beat.

ACCESSORIES

46.00 34.00

54.00

Aatrix Payroll Plus	165.00	People you th	ure	
Business Sense	279.00	Duigos vore'll	Louis	
Checkmark MultiLedger	284.00	Prices you'll	tove	
Checkmark Payroll 3.0	209.00	and a notum	nolin	that aguit ha
DAC Easy Light	43.00	ana a return	i poiicy	that can't be
In Sight Accounting	Call			
MacInTax	Call			
MacMoney	62.00			
Managing Your Money	128.00	COMMUNICAT	IONS	DESK ACCESSOR
Quicken	33.00	& NETWORK	ING	& UTILITIES
Rags to Riches 3-Pk (GL/AR/AP)	315.00	Acknowledge	344.00	Affinifile
Simply Accounting	209.00	LapLink Mac	85.00	AutoSave DA
Timeslips III	119.00	MacLink Plus	145.00	Copy II Mac
	March 1	MacNet Starter Kit	36.00	Disk Express
		Microphone II	225.00	Disk Fits
		MS Mail (1-4 Users)	199.00	Disk Tools Plus
BUSINESS		Quick Mail (10 Users)	165.00	Expressionist 2.0
Bulk Mailer	79.00	Red Ryder	56.00	Gofer
Bulk Mailer Plus	195.00	Timbuktu	67.00	HyperDA

BUSINESS		Quick Mail (10 Users)	165.00	Expressionist 2.0	80.00
Bulk Mailer	79.00	Red Ryder	56.00	Gofer	44.00
Bulk Mailer Plus	195.00	Timbuktu	67.00	HyperDA	38.00
CAT 2.0	259.00	TOPS (Mac)	135.00	LaserTalk	159.00
Comment	54.00	Liaison	160.00	Menu Fonts	30.00
Cricket Graph	119.00	VersaTerm Pro	179.00	PC Tools Mac	39.00
Cricket Pictograph	105.00		2.5	Pyro	15.00
Cricket Presents	289.00	The second secon		OuickDEX	32.00
Fast Forms	89.00	DATABASES	7.7	Ouickeys	53.00
Focal Point II	89.00	DBase Mac	305.00	Sentinel	155.00
For the Record	30.00	Double-Helix II	345.00	Smartscrap & The Clipper	48.00
Mathview Pro	145.00	Filemaker II	239.00	Stepping Out II	55.00
MicroPlanner + 6.0	365.00			Suitonea II	45.00

MicroPlanner + 0.0 208.00Suitcase II Systat 490.00 McMax 169.00 SUM 58.00 WillMaker Record Holder Plus 34.00 82.00 45.00 Super Laser Spool Works Plus Command 59.00 | Reflex Plus 199.00 | Virex

CDABUICG		XII.	
GRAPHICS	25.00	COMMUNICATION	1
ClickArt EPS Illustrations	75.00		0.00
ClickArt Graphics (ea.)	29.00	Abaton InterFAX	349.00
Canvas 2.0	165.00	Anchor 2400 Modem	169.00
Cricket Draw	169.00	Practical Peripherals 2400 Bundle	245.00
Cricket Paint	119.00	Shiva NetModem 2400	439.00
Curator	79.00	TurboNet ST	30.00
Desk Paint 2.0	72.00		100
Digital Darkroom	199.00	DISK DRIVES	100
Dreams	285.00	Dayna File	Call
Freehand	349.00	CMS Pro 45 (Int SE)	695.00
Illustrator '88	309.00	CMS Pro 60 (Int II)	699.00
Image Studio	279.00	CMS SDU 30 (Ext)	629.00
Images With Impact	59.00	CMS SDU 60 (Ext)	839.00
Laser Paint Color	359.00	CMS TS 60 Tape Backup (Ext)	769.00
MacDraft	151.00	Cutting Edge 800K Floppy	175.00
MacDraw II	329.00	Crate MC 60 (Ext)	749.00
Modern Artist	275.00	Crate MC 100 (Ext)	949.00
Photon Paint	179.00	Crate 30 (Int SE)	495.00
Pixel Paint	209.00	Crate 80 (Int II)	769.00
Print Shop	36.00	Crate 160 (Int II)	1379.00
Studio 8	309.00	PL Infinity Turbo 44	1299.00
Super 3D Enhanced	330.00		20000000
Video Works II	169.00	MONITORS w/cards	
Wet Paint vols. 1 - 16	45.00	EMachine Z21 B&W	1995.00
		EMachine Z21 Gray Scale	2795.00
		Mirage SE One Page Display	795.00
WORD & PAGE LAYO		Mirage I SE (19")	1495.00
Acta	42.00	Moniterm Viking 2400	1995.00
Adobe Postscript Fonts	Call	NEC Multisync Plus (15")	1879.00
Coach Professional	105.00	PCPC Shadowgraph GS	2479.00
Coach Pro Network	299.00	RasterOps 16" & 19" Sony	Call
Coach Thesaurus	35.00	Sony 1302	1269.00
Findswell	29.00	CALL! Other Monitors Avail	
Fluent Laser Fonts (ea.)	50.00		
Fontographer	239.00	N. S.	
FullWrite Professional	269.00	OTHER PERIPHERAL	
MergeWrite	35.00	Bit Pad Plus 12X12 Tablet (Adb)	349.00
More 2.0	225.00	High Trek Carry Case	59.95
OmniPage	575.00	High Trek Carry Case (SE Ext)	69.95
Pagemaker 3.0	389.00	Dust Covers (Most)	19.95
Quark Xpress	479.00	MacScan Flat Bed Scanner	1695.00
Quark Style	189.00	MacScan Grey Scale FB	2325.00
Read It! (OCR)	206.00	Dove Marathon 33	1045.00
ReadySetGo! 4.5	285.00	Personal Laser Printer Plus	1669.00
WordPerfect	202.00	Prodigy SE (4mg RAM)	2499.00

SYSTEMS Let us configure your system solution!

Mac II B&W Full-Page System, 6279.00 2 Mb RAM, 60 mb hard drive, Mac 101 Keyboard

Mac II B&W Two-Page System, 6779.00 2 Mb RAM, 60 mb hard drive, Mac 101

Mac II 19" Gray Scale System, 7349.00 2 Mb RAM, 60 mb hard drive, Mac 101

Mac II 14" Sony Color System, 6249.00 2 Mb RAM, 60 mb hard drive, Mac 101 Keyboard

Mac II 16" Sony Color System, 7695.00 2 Mb RAM, 60 mb hard drive, Mac 101 Keyboard

Mac II 19" Sony Color System, 11295.00 5 Mb RAM, 160 mb hard drive, Mac 101 Keyboard

Mac SE 030 w/1 SuperDrive, 4629.00 2.5 mb RAM, 40mb hard drive, Mac 101 Keyboard

Mac SE w/2-800k Drives, 3795.00 2.5 Mb RAM, 45mb Int hard drive, Mac 101 Keyboard

Hundreds More . . . No surcharge on Visa or MasterCard. Credit cards charged after product shipment. Purchase orders accepted on approved accounts. Sorry, no COD's or personal checks. Trial purchase based on a 10-day minimum, plus six free days for shipping. All hardware sold with a 30-day money-back guarantee. Prices subject to change without notice.

When you're sure of the software you want, buy it with our promise... if there's something you don't like, we'll take it back. We'll treat it as a trial purchase, and refund the difference between what you paid to buy the software, and what it would cost if you had taken it on trial (10-day minimum and we provide six free days for shipping). When you're not sure, ask about trial purchase. You can look at one or several competing programs, and save with our Try-Pack specials. Either way, we'll help you get Software That Fits.

47.00 Thunderscan 4.0

Qume ScripTEN Laser Printer

109.00 Uninterruptable Power Supply

45.00

Word Tools

Works Plus Spell Write Now 2



1-800-972-3018

(713) 540-2300

FAX 713-446-8499

3395.00

199.00

Call

PO Box 4028 Humble, Texas 77347 Please circle 152 on reader service card.

MacLand

The Lowest Prices with Technical Support, Too!

WARNING: Beware of money-back offers on hardware! MacLand sells only NEW, NEVER USED merchandise. We will not send you re-packaged, slightly-used hard disks.

External Hard Drives

20 Megabyte
Everex 20D \$499.
Everex 20DL
MacBottom 21\$649.
30 Megabyte
CMS Enhancements 30 \$589.
MacBottom 32\$689.
MacLand\$559.
MicroNet 30\$579.
Wedge 30\$559.
40 Megabyte
Conner 40
Everex 40DL\$779. Everex 40 Impact\$779.
MacBottom 45\$969.
MicroNet 45\$699.
Quantum 40*\$699.
Wedge 45
60-70 Megabyte
CMS Enhancements 60\$749.
Everex 60 Impact\$899. MacBottom 70\$989.
MacLand
MicroNet 62\$739.
80 Megabyte
CMS Enhancements 81 \$1,099. Everex 80 Impact \$1,149.
MicroNet 90
MicroNet 80\$949. Quantum 80*\$899.
90-100 Megabyte
Conner 100
CDC 90
140 Megabyte
Rodime 140 \$1,299.
150 Megabyte
CDC 150 \$1 949
MicroNet 150 \$1,949.
173 Megabyte
CDC 173 \$1 649
MicroNet 173 \$1,649.
Drives over 173 Meg Call for Price
- 1100 Over 170 meg can for Price
Internal Hand B.
Internal Hard Drives

Internal Hard Drives for the SE

30 Megabyte

CMS Enhancements 30	\$469
Cutting Edge 30	.\$459.
40 Megabyte	
Conner 40	.\$549.
Everex 40SE	.\$675.
Quantum 40*	.\$599.

45 Megabyte
CMS Enhancements 45\$659.
MicroNet 45M
Cutting Edge 45\$619.
60 Megabyte
Everex 60SE
80 Megabyte
CMS Enhancements 80 \$1,099.
Everex 80SE \$1,079.
MicroNet 80
Quantum 80*\$879.
90-100 Megabyte
Conner 100
MicroNet 90\$849.

Mac II Internal Hard Drives
40 Megabyte
Conner 40
Everex 40ID\$675.
MicroNet 45M
Quantum 40*\$599.
60 Megabyte
CMS Enhancements 60\$659.
Everex 60ID\$799.
MacLand\$599.
MicroNet 62
80 Megabyte
CMS Enhancements 81\$999.
Everex 80ID \$1099.
MicroNet 80\$889.
Quantum 80*\$879.
90 Megabyte
CDC 90\$949.
MicroNet 90M
100 Megabyte
CMS Enhancements 102 \$999.
Conner 100

OTTIO ETITIONIO TOO			
CDC 150		 \$1	.699
MicroNet 150		 \$1	,699
173 Megaby	te		
CDC 173		 \$1	.549
MicroNet 173		\$1	549
300 Megaby	rte		
CDC 300		 \$2.	349
CMS Enhancements 300		 \$2.	679
MicroNet 300		 \$2,	349.
Priam 327		 \$2,	295.
CDC Wren Runner			505

140 Megabyte
CMS Enhancements 140

CMS Enhancements 150

\$1,149.

Removables

MicroNet 45		5	1,19	9.
(includes one cartridge) 45 Cartridge			.\$119	9.
				_

Tape Back-Ups

CMS En	h	a	ır	IC	E	r	n	e	n	t	S	6	()				\$699.
Everex 6	J)				ì							,					. \$749.
Irwin 40																		\$899.
Irwin 80																		\$1,099.
MicroNe	ŧ	6	C)		,											į	\$739.

Hardware Accessories

Anchor-5 year warranty (includes Cable & Software)
2400 Baud Modem\$149
Everex 2400 Baud Modem & Cable \$209
Farrallon Mac Recorder
Cutting Edge ADB Keyboard\$119
General Computer Business Laser Printer\$3,199 Personal Laser Printer\$1,499.
Irwin Accelerator 25 SE\$1,249.
Qume Crystal Print Publisher \$3,299. Script 10 Laser Printer \$3,299.
Radius Radius 16 + Accelerator \$739.
Radius 25 Accelerator \$1,249.
Full Page Display +, SE \$1,299.
Full Page Display II\$1,375.
Two Page Display SE, II \$1,849. Radius Color Monitor Call.
The second secon

Memory

SIMMS IN STOCK

If you didn't call us you paid too much for your memory!

All hard disk drives carry a manufacturers one year warranty except for the *Quantum drives, which have a manufacturers two year Warranty.









For Ordering and Technical Support Call 1-800-333-3353

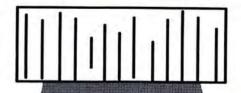
Visa, MasterCard, and American Express accepted NO surcharge. Your Credit Card will not be charged until your order is shipped. We accept COD orders, additional \$5.00 charge. AZ residents add 6.5%. All shipments made by Federal Express

Standard Air which is 1 to 2 day service. COD's Shipped by UPS 2 day air. Call for shipping costs. Products purchased in error are subject to a 20% restocking fee. All prices subject to change without notice. All products subject to availability.





1-800-825-MACS FAX • 1-818-501-3760



Examine

Dr. Mac provides superior service.



Check this symbol for Dr. Mac's special prescriptions.

CALL 1-800-825-6227

Your Prescription For Success

= SOFTWARE =	FIFTH GENERATION
3G GRAPHICS Images with Impact	Fastback Suitcase Power Station
ABA SOFTWARE Graphist Paint II265	FOX SOFTWARE FoxBASE + / Mac FoxBASE + Runtime / FoxBASE +/Mac Multi
ADOBE SYSTEMS Adobe Illustrator '88	ICOM SIMULATIONS
AEC Info Manager	On Cue
ALDUS Pagemaker 3.0	Smart Alarms & Appt. Smart Alarms Multi-Us
ALSOFT Disk Express 33 Font/DA Juggler Plus 40	INNOVATIVE DATA DES Mac Draft Paste-Ease Dreams
ASHTON-TATE	INTUIT Quicken
FullPaint 69 FullWrite 275 dBase Mac 299	LACIE Silver Server
BEDFORD SOFTWARE Simply Accounting	Ready, Set, Go 4.0 Image Studio
Stepping Out II	MACROPAC INTERNAT 101 Macros for Excel
Drawing Table	MARK OF THE UNICOR Performer Professional Compose
CAERE Omnipage 550	MECA Managing Your Money
CENTRAL POINT Copy II Mac	MICROSOFT MS Word
CENTRON SOFTWARE Casino Games	Chart Excel File 2.0 Works
CE SOFTWARE OuicKeys	Power Point Quick Basic
Disktop	NOLO PRESS Will Maker
CHANG LABS C.A.T. 2.0	NORTHEDGE SOFTWAR
CLARIS , MacDraw II	PRO PLUS Wall Street Investor
FileMaker II 235 MacProject II 388	QUARK XPress Style
Compuserve Navigator40 DATA VIZ	SILICON BEACH SOF
Mac Link Plus103	Super Paint 2.0 Dark Castle Silicon Press
dBFast Mac115	Beyond Dark Castle Super 3D Digital Darkroom
DENEBA 150 Canvas 2.0 51 Coach 51 Comment 2.0 51 Coach Thesaurus 31 Coach Professional 99	SOFTVIEW, INC. TaxView Planner Form Set Business Formacintax
DUBL CLICK SOFTWARE Wet Paint Vol. 1 & 2	SOFTWARE VENTURES Microphone II
World Class Fonts	SOLUTIONS INTERNAT SmartScrap & The Cli
MacTerm 73	SuperGlue

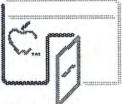
Suitcase	
	43
Power Station	43 36
FOX SOFTWARE	
FoxBASE + / Mac FoxBASE + Runtime / N FoxBASE +/Mac Multius	200
FoyBASE - Duntima / N	Inc. 155
Far DACE - Man Market	216
FOXBASE +/Mac Multius	er 310
ICOM SIMULATIONS	
ICOM SIMULATIONS	
Tmon On Cue	
On Cue	
IMAGINE SOFTWARE	the second
Smart Alarms & Appt. D	iary 32
Smart Alarms Multi-Use	79
INNOVATIVE DATA DESIG	GN
Pasta Casa	20
Paste-Ease	28
Dreams	265
DITTUTT	
Quicken	33
Silver Server	89
LETRASET	
Ready, Set. Go 4.0	275
Imane Studio	275
MACROPAC INTERNATIO	NAI
101 Macros for Excel	20
TOT MACIOS IOF EXCEL.	
MARK OF THE UNICORN	
MARK OF THE UNICORN	240
Periormer	
Professional Composer	396
Managing Your Money .	125
The second secon	
MS Word	248
Citali	nco
Excel	250
File 2.0	
Works	195
Elight Simulator	
	24
Deves Devet	34
Power Point	259
Power Point	
Quick Basic	259 73
Quick Basic	73
Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III	73
Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS	
Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS	
NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor	
NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor	
NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor	
POWER POINT OUICE Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor WARK XPress	
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK KPress Style	
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK KPress Style	
POWER POINT OUICE Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT	
POWER POINT OUICE Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT	
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle	73 33 115 115 475 175 WARE 123 26
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor COUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom	33 E 115 319 475 175 WARE 123 26 40 25 152 152
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor COUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom	33 E 115 319 475 175 WARE 123 26 40 25 152 152
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor QUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner	33 E 115 475 175 WARE 123 26 40 40 152 152 152 63
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Form	33 E 115 319 475 175 WARE 123 26 40 26 152 152 152 63 83 85 50
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Form	33 E 115 319 475 175 WARE 123 26 40 26 152 152 152 63 83 85 50
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Form Macintax	33 3 115 115 175 175 175 175 175 175 175 175
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Forn Macintax	33 E 115 319 475 175 WARE 123 26 40 26 152 152 152 63 85 63
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Forn Macintax	33 E 115 319 475 175 WARE 123 26 40 26 152 152 152 63 85 63
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Form Macintax SOFTWARE VENTURES Microphone II	33 E 115 319 475 175 WARE 123 26 40 40 152 152 152 152 152 152 152 152 152 152
Power Point Ouck Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPross Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 30 Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Forn Macintax SOFTWARE VENTURES Microphone II SOLUTIONS INTERNATIO	33 3 115 115 175 175 175 175 175 175 175 175
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 30 Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Forn Macintax SOFTWARE VENTURES Microphone II SOLUTIONS INTERNATIO	33 3 115 115 175 175 175 175 175 175 175 175
Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUARK XPross	33 3 1 115 475 175 WARE 123 26 40 40 40 152 152 152 152 152 152 152 152 152 152
Power Point Ouick Basic NOLO PRESS Will Maker NORTHEDGE SOFTWARE Timeslips III PRO PLUS Wall Street Investor OUJARK XPress Style SILICON BEACH SOFT Super Paint 2.0 Dark Castle Silicon Press Beyond Dark Castle Super 3D Digital Darkroom SOFTVIEW, INC. TaxView Planner Form Set Business Forn Macintax SOFTWARE VENTURES Microphone II SOLUTIONS INTERNATIO SmartScrap & The Clipp SuperGive	33 3 115 115 175 175 175 175 175 175 175 175

SUPERMAC SOFTWARE	
SuperSpool 5.0 SuperLaserSpool 2.0 Multi-User SuperLaserSpool Diskfit Network Diskfit	52
SuperLaserSpool 2.0	79
Multi-User SuperLaserSpool	195
Network Diskfit	195
Sentinel	149
Diskfit Network Diskfit Sentinel PixelPaint	249
SYMANTEC	
Mac SQZ In-Box Starter	46
In-Box Starter	199
Lightspeed C Lightspeed P	105
More II	224
	CLY
SYMMETRY CORPORATION	20
Acta 2.0 HyperDA	38
TRAVELING SOFTWARE Lap Link Mac	02
	02
T - MAKER Write Now 2.0	1.00
	. 109
TOPS	
TOPS for Mac	116
TOPS Flashcard	165
WORDPERFECT CORP.	
Wordperfect	189
= HARDWARE	
TIATIONALIE	
ABATON	251
Interfax Fax-modem	324
CUTTING EDGE	
CE 800K Disk Drive	172
Wedge XL 30+ Wedge XL 45+	595
	/95
DATADESK	
Mac · 101	149
DOVE COMPUTER CORP.	
68020 Accelerator Boards for M	lac
MSF 2 1MB	975
MSE 1 MSE 2 MMB MSE 3 MATH Co-processor MSE 4 1MB and Math Co-pro Acc. or MacIl Memory Exp.	. 734
MSE 4 1MB and Math Co-pro	1155
Acc. or MacII Memory Exp	. 459
Macsnap 1024 Macsnap 2H Macsnap 2S	446
Marshan 2S	734
Macsnap 4H	1357
Macsnap 4H Macsnap 4S MacSnap Plus 2	1455
MacSnap Plus 2	446
EMAC	
Emac 20 DL = 38ms	499
Emac 40 Impact Plus 19ms	799
Emac 20 DL 38ms Emac 40 Impact Plus 19ms Modem 2400 Baud with cable Tape Back up 150T	1202
Tape back up 1501	1202
FARALLON COMPUTING	
PhoneNET-AppleTalk 120	136
PhoneNET PLUS	35
PhoneNET Star Controller	1225
PhoneNET PLUS PhoneNET Star Controller PhoneNET Punch Down Kit	68
I mbuktu	-1 /8
Timbuktu Remote	206
	133
GENERAL COMPUTER	***
Write Move	1676
PLP Laser Printer Plus Business Laser Printer	3249
HARD DRIVE KITS	424

	KENSINGTON Disk Drive Cleaning Kit
	Macintosh II Stand
	MASS MICRO 1519 Data Pak 2525 Data Pak Hard Drive 40 2525
	PERIPHERAL LAND 30 Turbo - 14ms access time 622 50 Turbo - 14ms 799 70 Turbo - 14ms 923 Infinity 40 - 10ms 1222 Twn 40 - 10ms 2069
	PRACTICAL PERIPHERALS 1200 Baud External Modem 105 2400 Baud External Modem 185 Mac Comm. Pac 2400 226
	SAMSUNG 15 In. Monitor Mac II
ŀ	SHARP JX-450 Color Scanner
	SIGMA DESIGNS Color Max II 3760 LaserView 19 in. SE 1599 LaserView 19 in. II 1679 Pageview Plus 875 SilverView SE/II 1419
	SUMMAGRAPHICS Bit Pad Plus ADB
	SUPRA 2400 Baud External Modem 140
1	SYSTEMGATE 800K Floppy Drive. 159 TARGUS Mac Plus/SE Carry Case
	Imagewriter II Carry Case
74	1 Még. 5 year Warranty 289 POLICIES - Corporate Accounts Welcome, Please send Purchase Orders - Visa, Mastercard, and AMEX accepted.
	Credit card is not charged until order is stripped California residents add 6.5% sales tax To order call Mon - Fri, 10 - 10 EST Enquines call (818) 501-6581, FAX# (818) 501-3760 All prices subject to charge without notice,
	Shipping - All orders add \$5. UPS Blue - Same day shipping on orders placed by 7pm EST, if items are on hand. Returns
	Defective software will be replaced immediately by the same item. Call customer service at (818) 501-0861 for R.A. number before returning defective product.
	Dr. Mac Inc. 14542 Ventura Blvd., Suite 200 Sharman Oaks, CA 8402

Sherman Oaks, CA 91403

DR. MAC WELCOMES CORPORATE AND EDUCATIONAL ACCOUNTS

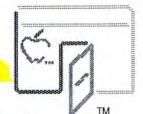


We RENT Mac Software!
MacStore
New Braunfels, Texas 78130

Soltware

We'll match any software rental price in this issue.

We have hundreds of other titles available for the Mac. If you don't see what you want - call us! rent buy Soltware



397									80"	1 141
Software	rent	buy	HSF Locater + Hypercard	8.80 9.90	25.66 45.00	More II Omnis III Plus		238.70 306.70	Hardware	bu
Accounting Packages		Call	Kid's Time	8.80	32.96	Overvue	35.80		Accelerator Boards	Ca
Battery Pak	8.80	32.27	LaserSpool	15.16	66.94	Picture Base	9.35	42.50	Audio Digitizer 28.91	129.4
Bulk Mailer +	44.72	203.28	Languages		Call	Postermaker +	8.80	37.26	Disk Files (plastic or Teak)	Ca
Business Sense	61.25	278.45	Lap Link	17.32	78.73	Pinball Construction Set	8.80	22.50	800k External Drives	184.5
Certificate Maker	8.90	39.56	Mac Attack	8.80	32.34	Quick Keys	12.77	60.46	Mac 101 Keyboard	147.2
Click Art, Effects, Letters.	8.80	Call	Mac Calligraphy	23.60	107.25	Quicken	8.80	29.62	Mac Vision 48.29	219.5
Coach Professional	25.95	111.54	Mac Command	8.80	41.80	Read It for Thunderscan	18.75	85.22	Thunderscan 41.60	189.0
Copy II Mac	8.80	20.90	Mac Draft	33.84	153.86	Ready Set Go	65.90	299.50	Upgrades	Ca
Cricket Draw	39.26	173.47	Mac Draw II	66.91	304.15	Resume Writer	12.58	57.20	Power Supply Board Repairs	109.0
Cricket Graph	27.90	119.70	Mac Golf	9.10	37.15	Super Paint	13.40	76.29	(Exchange)	
Crystal Quest	8.80	27.86	Mac Labeler	8.80	31.71	Tempo II	19.95	90.71	19" Moniterm Monitor (SE)	1489.2
Davinci (We have them all	!)	Call	Mac Lightning	14.80	65.34	Will Maker	8.80	36.26	20 Mb Internal Hard Disk	510.0
Desk Paint	8,80	35.81	Med. or Legal Dict.		Call	Write Now	25.41	109.69	30 Mb Internal Hard Disk	558.0
Dollars and Sense	20.10	85.35	Mac Money 3	15.10	72.50	Word	55.17	Call	46 Mb Internal Hard Disk	642.0
Excel	57.56	261.67	Mac Project II	83.85	381.15	Works	43.00	195.49	90 Mb Internal Hard Disk	Ca
Filemaker Plus	36.50	171.05	Mac Spin		145.20	Accessosies			Networking	
Fluent Fonts all	10.25	42.17	Mac Write	17.95	125.00	Accessories		buy		buy
Ferrari Grand Prix	8.80	35.80	Mac the Knife		Call	Carrying Cases for all Mac	S	Call	Tops Software 27,35	124.3
Flight Simulator	8,80	34.45	Map Maker		230.34	10 Boxed Sony Disks SS		13.80	Phone Net or Turbo Net	19.9
Fox Base +	43,44	197.49	Math Blaster	9.30		10 Boxed KAO Disks SS		12.15	60 Mb SCSI Tape Backup	695.0
Gato, Orbitor, or Gridwars	8.80	31.33	Managing Your Money	27.22	123.75	Disk Drive Cleaning Kit		11.50	Uninterruptible Power Supply	Cal



16 day rental period · Rental applies to purchase · Frequent renter bonus dollars Credit cards aren't charged until your order is shipped . Low freight charges .

In Texas 800-222-1537 National Prices subject to change.

The store logo is a trademark of MacStore, Inc., the apple logo a trademark of Apple Comp. Inc. or dial direct 512-629-5419

AMERICAN EXPRES

Please circle 165 on reader service card.



When your surge protector fails will your in-surance save you? SAFEWARE computer insurance covers power surges, lightning, theft, fire, accidental damage and more! Full replacement of hardware, media and purchased software for as little as \$39 per year.

Total Value, Hardware,	Annual
Media & Purchased Software	Premium
up to \$2,000	\$ 39
\$ 2,001-\$ 5,000	\$ 69
\$ 5,001-\$ 8,000	\$ 89
\$ 8,001-\$11,000	\$109
\$11,001-\$14,000	\$129

For immediate coverage, information and rates on higher coverages, call

20° 1-800-848-3469

Locally 614-262-0559 On Compuserve, GO SAF

SAFEWARE, The Insurance Agency Inc. 2929 N. High St., P.O. Box 02211, Columbus, OH 43202

Please circle 150 on reader service card.

Changing your mailing address?

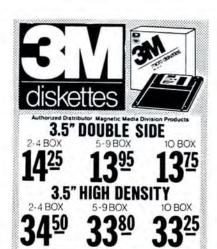
It's a simple procedure to ensure
that your next issue of MacUser
will catch up with you as soon as
you move.

Please send *your* NEW address PLUS your current mailing label to:

MacUser

P.O. Box 56986

Boulder, Colorado 80322-6986 Please allow up to 60 days for change of address to take place.



Oklahoma 1.800-654-4058 Diskette Ohi Nevada 1-800-621-6221 TELEX 4933362 FAX (405) 495-4598



Delaware 1-800-451-1849 Oklahoma 1-800-654-4058 Diskette | Oklahoma 1-800-654-4058 | Oklahoma 1-800-654-4058 | Oklahoma 1-800-621-6221 | Oklahoma 1-800-621-6221 | Oklahoma 1-800-621-6221 | Oklahoma 1-800-654-4058 | Oklahom TELEX 4933362 * * * * FAX(405) 495-4598

MAC-PAC-50 DOUBLE SIDE - NO LABEL 3.5" BULK Each 1.11 1.09 1.06

Delaware 1-800-451-1849

Oklahoma 1.800-654-4058 Diskette 1 Oklahoma 1.800.654.4058
PO BOZ WAN BETHANY, OK. 72008
ONNECCION Nevada 1.800.621.6221
PO BOZ 12796, LAS VEGAS, NV. 89112 TELEX-4933362-FAX 405-495-4598

Minimum order \$2000 "No Surcharge on Visa Master Card." COD orders add \$390. Surface Shipping UPS add \$300 per 100 for 3½" or 5¼. add \$400 per 100 for 8." U.S. Mail delivery add 9%."Prices subject to change without Notice."

Please circle 120 on reader service card.

Power for your MACINTOSH

MEMORY

48 Hour Shipment Guaranteed!

For Macintosh Plus.SE.II

Ram II+II - Cost Effective SCALL 4 Megabytes RAM, 120ns, CMOS.

Ram II- Cost Effective (No Mac II) Two 1 Megabyte SIMMs SCALL

For Macintosh Plus

RamPlus 2- Cost Effective Expands to 2 Megabytes RAM. Plus Only

RamPlus 4-

Expands to 4 Megabytes RAM. Plus Only

Reliable delivery for over 4 years!

We've reduced prices!

Call now to get your RAM upgraded.

VIDEO

NOW WITH GENLOCK!

Mac II to NTSC (Television) Converter Connect your Mac II to NTSC video.

Record your Macintosh images to video tape, or use for live presentations. Compatible with Apple & SuperMac Video Cards. The NEW GENLOCK Converter allows you to overlay Macintosh graphics onto video from a camera or VCR.

STANDARD

\$599.

GENLOCK

\$999

Ask about our special Videoworks II, offer!

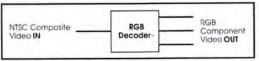


Digitization

NEW

RGB Converter

Converts standard video to RGB for your frame grabber or digitizer. Saves you \$1000's since RGB camera is no longer required.



The RGB Decoder eliminates the need for special camera equipmen

Call for more information!

All OPEN MAC products are Guaranteed:

Are Manufactured by OPEN MAC Enterprise - Are User Installable - Preserve Manufacturer's Warranty - Carry a minimum I Year Warranty - Are stocked for rapid shipment -Are listed at a Cash Discount Price - Credit Cards not charged until shipment - Prices may vary

VISA/MC/AMEX/Discover Accepted

OPEN MAC Enterprises

5/682-0440- FAX: 415-686-4244

ORTUNE 1000 PURCHASE ORDERS ENCOURAGED 2280 Bates Avenue, Suite J, Concord, CA 94520

Please circle 90 on reader service card.

UPDATES

There is a poetic saying that "life is but a metamorphosis," and in the same sense, software is but a metamorphosis, constantly changing with upgrades and new versions. As with all changing things, software tends to be difficult to keep up with, and for Mac users, upgrade information is important.

Therefore, the following chart is an attempt to keep your knowledge of upgrades and new versions (as of press time) of many popular programs up-to-date. To see if you have the most current versions, check the About... item at the top of the Apple menu when you run a program.

Those of you with the Mac 512K, 512KE, or XL (Lisa) should be running System 3.2 and Finder 5.3. Everyone else should be running System 6.0.2.

Microsoft has updated Power-Point to version 2.01. Included in the upgrade is a Genigraphics driver and GraphicsLink. Users can image slides directly to any Genigraphics Service Center in North America. Quark has updated QuarkXPress to 2.0A.

All programs listed here are HFS-compatible. From this chart, you can extract the following information: CP or NCP for copyprotected or not copy-protected; // for programs we have found to be Mac II compatible (not yet a comprehensive list); and S for shareware (try before you buy). Changes and new listings are in bold. Programs that appear to be compatible with the Mac II may not actually perform 100 percent of the functions they perform on other Macs and do not necessarily take full advantage of the Mac II.

> NCP.// NCP,// CP.// NCP.// NCP.// NCP NCP NCP NCP,//

> NCP.// NCP.// NCP// NCP.// NCP.// NCP.// NCP NCP NCP.// NCP.// NCP.// CP.//

NCP.// NCP.// NCP.// CP.// NCP.// CP NCP.// NCP.// NCP.// NCP.// NCP.// NCP NCP NCP,// NCP NCP.// NCP NCP.// NCP.// NCP// NCP.// NCP NCP NCP.// NCP CP NCP.// NCP.//

NCP.// NCP.// NCP.//

NCP// NCP NCP NCP.// NCP. // NCP NCP.// NCP.//

NCP,//

NCP. //

NCP.// NCP.//

NCP

CD CHILD AND BUILDING		
A.A.I.S. Prolog	M1.15	NCP
Aatrix TimeCard	2.0	NCP //
Accountant, Inc.	2.1	NCP.//
Acta	2.0	NCP,//
AffiniFile	1.1	NCP,//
AMS General Ledger AppleShare	2.08	NCP
Workstation	2.0.1	NCP.//
ArtRoom	3.0	NCP.//
Aztec C	3.4b	NCP.//
Backgrounder	1.2	NCP
Back to Basics	1.03	NCP
Bulk Mailer	3.23	NCP,//
Business Filevision	1.1	NCP
CalendarMaker	3.0	NCP.//
Canvas	2.0	NCP.//
Capture	1.1	NCP.//
CAT	2	NCP, //
Chart Chooser	1.02	NCP
ClickArt Effects	1.01	NCP NCP.//
Clipper	1.01	NCP.
CloseView	1.0	NCP
Cognate	1.5	NCP.//
Colleague	1.1	NCP.//
ColorChart	1.3	NCP
Colorizer	1.1	NCP.//
ColorMate	2.1	NCP
ColorPrint	2.03	NCP
Comic Strip Factory	1.6	NCP.//
Comic Works	1.0	NCP.//
Comment	2.0	NCP.//
ConcertWare +	4.0	NCP,//
ConcertWare + MIDI Control Panel	4.0 3.3	NCP.//
Copy II HD	7.1	NCP
Copy II Mac	7.1	NCP
Cricket Draw	1.1.1	NCP.//
Cricket Graph	1.2	NCP
Cricket Presents	2.0	NCP.//
Curator	1.04	NCP.//
DA Handler	6.0	NCP
Deluxe Music		
Construction Set	2.0	CP
Design/IDEF	1.1	NCP,//
DesignScope	1.14	NCP,//
DeskLink Disk Express	2.0	NCP.//
Disk First Aid	1.10	NCP
DiskFit	1.4	NCP NCP.//
DiskInfo	1.45	NCP.S
Disk Ranger	3.1	NCP
Disk Tools Plus	1.01	NCP.//
DiskTop	3.03	NCP.//
Dollars & Sense	4.0	NCP.//
Double Helix II	r40	NCP.//
"Draw it Again, Sam"	2.04	NCP,//
Dungeon Revealed	1.2.3	NCP,//
Easy Access Easy3D	1.0	NCP
Edit	1.01	NCP
Excel	2.1 1.5	NCP NCP.//
ExperCommon Lisp	2.2	NCP.
ExperLisp	1.5	NCP.//
ExperLogo	1.1	NCP
Expressionist	2.0.3	NCP.//
EZ Draft	2.0	NCP,//
Falcon	2	NCP.//
FastBack	1.02	NCP,//
Fast Forms	1.2	NCP,//
File	2.0	NCP.//
Ferrari Grand Prix Filemaker II	1.5	CP.//
Finder (HFS)	6.1	NCP.//
Finder (MFS-128K)	4.1	NCP
Findswell	20	NCP//

4.1

2

1st Aid Kit-HFS

FONTastic Plus

NCP NCP.//

NCP,//

NCP.//

mile of oroni araiza		
FontFolio	1.0	CP.//
Font/DA Mover	3.8	NCP
Fontographer	2.3	CP
FontShare	1.1	NCP.//
Forecast 4th Dimension	1.0.6	NCP.//
FoxBASE + /Mac	1.10	NCP.//
Frame Mac	1.1	NCP.//
FreeHand	2.0	NCP,//
FreeTerm	2.0	NCP,//
FullPaint	1.0	NCP
FullWrite Professional	1.0	NCP,//
General GeoQuery	3.3	NCP NCP.//
Glue	1.04	NCP
GraphicWorks	1.13	NCP
Handwriting Analyst	1.2	NCP.//
Hard Disk 20	1.1	NCP
Hard Disk Utility	2.0	NCP
HD Backup	1.1	NCP
HD SC Setup Apple	2.0	NCP
HFS Backup	3.0	NCP,//
HFS Locator Plus HyperCard	1.2.1	NCP NCP.//
HyperDA	1.1	NCP.//
HyperEngine	1.1	//
Illustrator	1.0	CP/NCP,//
ImageWriter	2.7	NCP
ImageWriter, AppleTalk	2.7	NCP
ImageWriter LQ	2	NCP,//
ImageWriter LQ,		NOD II
AppleTalk	2	NCP.//
InBox Insight Expert	3.0	NCP,//
Accounting	2.01	NCP.//
Installer	2.04	CP.//
inTalk	3.0	NCP.//
Interleaf Publisher	3.5	CP.//
Jam Session	1.1	CP,//
Jazz	1A	CP
JustText	1.1	NCP
Keyboard	3.3	NCP
Key Layout Language Systems	2.3	NCP.//
FORTRAN	1.2	NCP.//
LapLink Mac	2.0	NCP.//
Laser Author	1.3	NCP.//
LaserPaint	1.9	NCP.//
Laser Prep	5.2	NCP
LaserShare	1.0	NCP
LaserSpeed	1.6	NCP.//
LaserStatus	2.0	NCP NCP
LaserWriter LaserWriter IISC	5.2 1.1	NCP
Layout	1.3	NCP.S
Legal Billing	1.86	NCP.//
Legal Billing II	2.56	NCP.//
LightSpeedC	3.0	NCP.//
LightSpeed Pascal	2.0	NCP.//
Listen 2.0	2.1	CP.//
Lookup Mac3D	1.0c 2.1	NCP.//
MacASM	1.2	NCP
MacBillboard	4.01	NCP.S
Mac C	5.0	NCP.//
MacCalc	1.2	NCP
MacChuck	1.5	NCP.//
Mac Daisy Link	1.04	NCP.//
Mac Disk Catalog II	2.1c	NCP
MacDraw II	1.0	NCP.//
MacDraft MacFlow	1.2b 2.04	NCP.//
MacFortran (all)	2.4	NCP.//
MacFortran / A/UX	1.0	NCP.//
MacGolf Classic	3.0	CP.//
MacInTalk	1.1	NCP

MacMovies	1.02	NCP	QUED/M	2.07
MacNosy V2	2.8	NCP	QuicKeys	1.1
MacPaint	2.0	NCP.//	QuickMail	1.0.5
MacPalette MacPascal	1.0	CP CP	QuickWord Rags to Riches	3.0
MacProject II	1.0	NCP.//	Ragtime	2.01
MacProof	3.0	NCP	Read-It!	2.0
MacSchedule	1.1	CP.//	Ready, Set, Go!	4.5
MacScheme+			Record Holder	2.1
Toolsmith	1.51	NCP.//	REdit	1.2
MacServe	2.3	CP.//	Red Ryder	10.3
MacSpec	1.3	CP CP	Reflex Plus	1.01
MacSpin MacSpool	1.1 3.0	NCP.//	Reports ResEdit	1.2 1.1b7
MacTell	3.5	NCP. //	Sales Associate	1.10
MacTerminal	2.3	NCP.//	Scrapbook	2.4
MacTools (MFS/HFS)	7.1	NCP	SCSI Tool	1.1
MacWrite	5.0	NCP.//	Sensible Grammar	1.1d
Mac Zap	5.0	NCP.//	SideKick	2.0
MailManager	1.0	CP NCP.//	Silicon Press	1.1
Managing Your Money Map	1.1	NCP.	Slide Show Magician Smartcom II	1.3 3.0a
Maple	4.2	NCP.//	SmartScrap & The	3.04
MapMaker	3.0	NCP.//	Clipper	1.03
Master Tracks Pro	3.2	CP,//	Sound	3.3
Mavis Beacon Teaches			SoundCap	4.4
Typing!	1.2	NCP,//	Space Edit	2.0
MDA MDS	2.0	NCP.//	SpellNow	1.0
Measure Test	12.7	CP.S.//	Spellswell Startup Device	2.0f 3.3
Megamax C	3.0	NCP	StatView 512+	1.1
MGMStation CAD	2.5	NCP.//	StatWorks	1.2
MicroPhone	1.5	NCP,//	Stella	1.3
MicroPhone II	2.0	NCP,//	Stepping Out II	2.01
Micro Planner Plus	6.0	NCP,//	Straight Talk	2.08
MindWrite MockPackage +	4.3.4	NCP.// NCP.S	Studio Session Suitcase	1.4
Modern Artist	2.0	NCP,//	Suitcase II	1.2
MORE II	2.0	NCP.//	SUM (Symantec	1.2
Mouse	3.3	NCP	Utilities for the Mac)	1.1
MPW	3.0B1	NCP.//	SuperGlue	1.03
MS BASIC	3.0	NCP	SuperPaint	1.00
MS BASIC Compiler MS Fortran	1.0	NCP	Switcher	5.1
MS Works	1.1	NCP NCP.//	Systat System (HFS)	3.2 6.0.2
MultiFinder	6.0	NCP.//	System (MFS-128K)	2.0
Multiplan	1.11	NCP.//	Telescape	1.0
Music Publisher	2.0	NCP.//	Telescape Pro VT 100	1.1
MusicWorks	1.1	CP	Tempo II	1.1
myDiskLabeler 'Ncryptor	2.11	NCP.//	Tetris Textures	1.1
Neon	2.0	NCP	Think 'n Time	2.0
Omnis III Plus	3.3	NCP.//	Thunder!	1.0.1
On Cue	1.3	NCP.//	Thunderscan	4.0
Orbiter	1.2	NCP,//	TML Pascal II	3.0
OverVUE	2.1e	NCP,//	TMON	2.8
PageMaker Parameter Manager	3.01	NCP.//	Top Desk	3.0
Plus	3.0	NCP.//	TOPS Trapeze	2.1
Performer	2.31	CP	Turbo Download	2.1
PictureBase	1.2	NCP	Turbo Maccountant	2.0
P51 Mustang Flight	10.00	2200	Turbo Pascal	1.1
Simulator	2.02	CP.//	Type Now	1.0
Plains and Simple	2.0	NCP.//	VersaCAD VersaTerm	2
PowerPoint .	2.01	NCP.//	VersaTerm Pro	3.0
PowerStation	2.5	NCP,//	VideoWorks II	2.0
Print Monitor	1.2	NCP.//	VIP	2.5
Professional Composer	2.1	CP	Virex	1.1
Profit Stalker II	1.3	NCP	Widgets	3.0
Programmer's Online Companion	2.0	NCP.//	Word WordPerfect	1.0.1
Project Billing	1.56	NCP.//	Works	2.0
Project Billing	3.0	NCP.//	WorksPlus Spell	2.0
Prototyper	2.0	NCP, //	Write	1.0
Pyro!	3	NCP.//	WriteNow	2.0
QuarkStyle Quark Y Proce	1.0	NCP.//	ZBasic	4.0
QuarkXPress	2.0A	NCP.//		

MacLabeler

CP

NCP,//

2.2

3.02

MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the MacUser editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in MacUser, the date of the review is shown. Eddy (Editor's Choice) Award winners are noted with a * and the year in which they won prizes for an excellent product. Next time you have to find products you can count on, count on MacUser!

MINIFINDER INDEX

BUSINESS ACCOUNTING	245
COMMUNICATIONS	
DATABASES	245
DESKTOP PUBLISHING	252
EDUCATION	264
ENTERTAINMENT	
GRAPHICS & DESIGN	246
HARDWARE & ACCESSORIES	
HYPERCARD	
LANGUAGES	263
MUSIC	
NUMBER CRUNCHING	246
ORGANIZATIONAL TOOLS	
PERSONAL FINANCE	245
SYSTEM SOFTWARE	
UTILITIES	
WORD PROCESSORS	254

BUSINESS ACCOUNTING

Accountant, Inc. integrates accounts payable, accounts receivable, general led
ger, and inventory modules. Prints checks, purchase orders, invoices,
customized reports. Bare-bones accounting system limited in size and
scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. Version 2.0. \$299. SoftSync, 162 Madison
Ave., New York, NY 10016. NCP (Oct '87)

Back to Basics Accounting is a powerful double-entry accounting software package for the small business user with GL, AR, and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. \$199. Peachtree, 4355 Shackleford Road, Norcross, GA 30093. NCP (May '87)

BPI General Accounting is an easy-to-use system. Six journals, Accounts Receivable, Accounts Payable, Payroll, and General Ledger on one disk. Offset amounts automatically post to ledgers. Up to 8,000 accounts. Detailed records, wide range of reports. Requires 512K+. \$89. Computer Associates, 1240 McKay Drive, San Jose, CA 95131. NCP (Aug '86)

Insight is a high-powered accounting program for the small-to-medium-sized business. Modules include Accounts Receivable, Payables, and General Ledger; others are in the works. Requires 512K and hard disk. \$595. Layered, 529 Main St., Boston, MA 02129. NCP (Dec '86) * '86 Eddy



Rags to Riches integrated accounting modules (General Ledger and Accounts
\$\$\$\$\frac{1}{2}\$\$\frac{1}{2}\$\$ Receivable) uses Mac interface to the hilt. Information entered in one
window automatically transfers. Detailed, flexible report options. Very
easy to use, but it can be confusing with several windows on-screen.
Requires 512K+ and printer. \$199.95 per module. Chang Labs, 5300
Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec '85)

Rags to Riches Professional Billing tracks and bills professional services. Batchtitle es activities for individual timekeepers. Use as stand-alone, or integrate with R to R modules. Requires 512K+, printer. \$399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129, NCP (Feb '87)

Simply Accounting has six ledgers and eight journals to handle the needs of most small-to-medium sized businesses. Better Mac interface than most. Payroll tax labels can't be modified, which forces you to subscribe to Bedford's yearly update service. Version 1.03. Requires 1 megabyte. \$349. Bedford Software, 15311 N.E. 90th St., Redmond, WA 98052. NCP (Sept '88)

Strictly Business General Ledger features clear, well-outlined setup procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each, and customized reports. Program print spools. Requires 512K+, printer and external drive. \$395. Future Design, 13681 Williamette Drive, Westminster, CA 92683. NCP (Dec '85) ★'85 Eddy

Timeslips III tracks billing and expense information for people who charge by the \$155% hour. DA turns the clock on and automatically bills a client when a session is over. Version 1.06. Requires 512K and two disk drives. Mac II and MultiFinder friendly. \$199.95. North Edge Software, 239 Western Ave., Essex, MA 01929. NCP (Sept '88)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. \$149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar '87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, easy-to-use.

\$\$\$\$\$\$\$ Accepts data from leading personal finance programs. Good built-in help.
Liberal upgrade policy for current owners. California forms set also available. \$119 federal; \$65 California. SoftView, 4820 Adohr Lane, Suite F,
Camarillo, CA 93010. NCP (Mar '87) ★ 86 Eddy

MacMoney is a financial manager that uses information gleaned from your checks and deposit slips. Produces a variety of reports and graphs. Version 3.1 reviewed. Requires 512KE and printer. \$119.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (July '88) ★'86

Managing Your Money is a feature-laden personal-accounting system with add-\$\$\$\$\$ ed financial and time-management functions. Uses double-entry accounting. Too-cute documentation. Version 2.0. \$219.95. MECA Ventures, 355 Riverside Ave., Westport, CT 06880. Requires 1 megabyte RAM, 128K or later ROMs. NCP. (Apr '89)

Quicken helps you write checks, then keeps a ledger showing you where all of your money goes. Tax information is automatically generated. Version 1.0. Requires 512K and printer. \$49.95. Intuit, 540 University Ave., Palo Alto, CA 94301. NCP (Nov '88)

Wall Street Investor spots stock market trends. Downloads information from an electronic service. Good charting ability. Previously known as Market Pro. Version 2.1. Requires 1 megabyte, two 800K drives or hard disk, Hayescompatible modem, and an I.P. Sharp account. \$495. Pro Plus Software, 2150 East Brown Road, Mesa, AZ 85203. NCP (Oct '88)

DATABASES

Business Filevision is a graphic database. Much more powerful than the original, accepts MacPaint graphics. \$395. Marvelin, 3420 Ocean Park Blvd., Santa Monica, CA 90405. NCP (Feb '86)

C.A.T. is a dedicated relational database for managing contacts, activities and time. Links between types of data make it easy to keep track of important people and events. \$399.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov '87)

dBASE Mac is a relational DBMS that includes a structured programming language to develop stand-alone applications. Palette icons as alternatives to menu commands will help novice users. Requires 1 megabyte +. \$495. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Feb '88)

Double Hellx II is a powerful database that supports a multiuser environment with an upgrade. Uses an icon-based development system for easy creation of databases. \$595, single-user version. Odesta, 4084 Commercial Blvd., Northbrook, III 60062. NCP (Apr '88)

EndNote provides database management for bibliographies. Designed to work in to be pasted directly into a word-processing document and then creates a bibliography from the citations. Version 1.0 reviewed. \$129. Niles &

MINIFINDERS I I I I I I I

Associates, 2200 Powell St., Suite 765, Emeryville, CA 94608. NCP (Feb '89)

FileMaker II is a multiuser version of the all-time best flat file manager for the \$\$\$\frac{1}{2}\frac{1}{2}\text{M}\$ Macintosh. New features include more flexible layouts, hierarchical menus, and color on the Mac II. Version 1.0. Requires 1 megabyte with two 800K drives or a hard-disk drive. \$299. Claris, 440 Clyde Ave., Mountain View, CA 94043, NCP (Dec '88)

4th Dimension is a versatile tool that creates stand-alone relational databases.

\$\$\$\$\frac{1}{2}\$\$\$\$\frac{1}{2}\$\$\$\$ Design and layout environments allow easy linking of information. Robust. Pascal-like procedure language. \$695. Acius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov '87) ★'87 Eddy

FoxBASE+/Mac is a relational database that can read unmodified dBASE III

1114

1114

1114

1114

1114

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

1116

MacDewey! is a cataloging program featuring the Dewey Decimal Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. Version 2.5. \$79.95. Mousetrap Software, 336 Coleman Drive, Monroeville, PA 15146. NCP (Nov '87)

Omnis 3 is a power database, featuring concurrent-multiple-file management.

Can handle 24 files, 12 at a time, and is fully relational. Create custom environments, including user-defined menus, commands, and dialogs.

\$495. Blythe, 2929 Campus Drive, San Mateo, CA 94403. NCP (Mar '86)

Pro-Cite is a complete database-management system for bibliographies. Almost unlimited flexibility in the formatting of bibliographies. Full-featured search and sort capabilities. Version 1.3 reviewed. Requires 512KE. \$395. Personal Bibliographic Software, Inc., P.O. Box 4520, Ann Arbor, MI 48106. NCP (Feb '89)

Record Holder Plus is a flexible, easy-to-use, form-oriented data manager. Setup is particularly simple and the search features are powerful. \$69.95. Software Discoveries, 137 Krawski Drive, South Windsor, CT 06074. NCP (Apr '86) ★'87 Eddy

Reflex for the Mac is a flexible relational database. Excellent report generator gives full control over appearance, style of output. Requires 512K+, second drive, or hard disk. \$99.95. Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Dec '86) ★ '86 Eddy

Reflex Plus is a relational database with "smart" entry, and report design, but no overall programming facility. Simple to set up, yet fast. Graphic capabilities are quite limited. Version 1.0 reviewed. \$279. Borland/Analytica, 4585 Scotts Valley Drive, Scotts Valley, CA 95066-9987. NCP (Feb '88)

Writer's Workshop maintains orderly records for writers. It can track manuscripts, income, and publisher. Based on and includes Runtime Helix. \$99.95. Futuresoft System Designs, P.O. Box 132, New York, NY 10012. NCP (Apr '87)

NUMBER CRUNCHING

Data Desk Professional lets you visually look at statistics with more ease than \$1554 any comparable Macintosh program. Plots variables so you can analyze data to see what patterns develop. Version 2.0. Requires 1 megabyte and two 800K disk drives or hard disk. \$495. Odesta, 4084 Commercial Ave., Northbrook, IL 60062. NCP (Nov '88)

Excel is THE power spreadsheet of the Mac. Has 256-column by 16,384-row spreadshee

MacCalc is a fast, competent, full-featured spreadsheet with impressive built-in \$\$\$\$
functions, font control, on-line help, ability to expand columns and rows, and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. A very flexible, pure spreadsheet. \$139. Bravo Technologies, c/o DPAS, P.O. Box T, Gilroy, CA 95021. NCP (Sept '86) ★'86 Eddy

MacSpIn is a unique and powerful graphic data analysis program. Handles multity type that in a highly visual manner. Nothing else like it for any micro. \$199.95. D² Software, P.O. Box 9546, Austin, TX 78766-9546. CP (June '86) ★'87 Eddy

MacSQZI compresses Excel files up to 88 percent of their actual size. Good to free up disk space. Also contains password utility. MultiFinder hostile. Requires Excel. Version 1.01. \$79.95. Turner Hall Publishing, 10201 Torre Ave., Cupertino, CA 95014. NCP (Aug '88)

Mathematica is a powerful tool for doing all kinds of math. Offers arbitrary-precition numeric calculations, symbolic computation, PostScript graphics, and programmability. Version 1.03. Requires 1 megabyte + and a harddisk drive. 2 megabytes RAM required to run kernel. \$495, \$795 for the Mac II version. Wolfram Research, P.O. Box 6059, Champaign, IL 61821. NCP (Nov '88)

MathView Professional is an equation solver that combines two- and threedimensional plotting with routines for matrices, differential equations and integrals, complex numbers, and the like. Interface leaves a lot to be desired. Version 1.0. Requires 512KE and two disk drives. Mac II and MultiFinder friendly. \$249.95. BrainPower, 24009 Ventura Blvd., Calabasas. CA 91302. NCP (Sept '88)

Microtemp Financial Calculators is a set of worksheets for Excel and Works that calculates common personal and small business financial problems. Includes cash flow, real estate and rate of return calculators. Version 1.0. \$79.95. Microtemp, P.O. Box 1208, Santa Rosa, CA 95402. NCP (Aug '88)

Mindsight is a professional level, decision-support, and business planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. \$249. Execucom Systems, P.O. Box 9758, Austin, TX 78766. CP (Dec '86)

Parameter Manager Plus is a data manager, incorporating integrated scheduling, statistics, and graphics. Solid spreadsheet, calendar, and database functions. Can import data from Excel or Lotus 1-2-3. \$595. Rebus, 2330-B Walsh Ave., Santa Clara, CA 95051. NCP (July '87)

StatVlew II is a remarkably complete data analysis package. Essential for any kind
\$\$\$\$\$\$ of descriptive, comparative, or multivariate statistics. Works in color on
the Mac II. Version 1.01. Requires Mac II or SE equipped with 68020 and
68881 math coprocessor; two 800K disk drives or hard disk. \$495.
Abacus Concepts, 1984 Bonita Ave., Berkeley, CA 94704. NCP (Oct
188)

101 Macros for Excel offers all the power of macros without having to learn how to write them. Some gems include a macro to transpose rows and columns, and a search and replace macro. Requires Excel. \$69.95. Macropac International, 19855 Stevens Creek Blvd., Cupertino, CA 95014. NCP (July '88)

GRAPHICS & DESIGN

ArtWare: Borders enables you to customize your own clip art disk. The border
\$3\$\$\$ collection is the best package in terms of quality of art. Other packages
available. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$129. Artware Systems, 3741 Benson Drive, Raleigh,
NC 27609. NCP (Aug '88)

Canvas 2.0 is a rich drawing/painting program, featuring full Bezier curves,

15111 cutting and joining of polygons, skewing, perspective and distortion,
auto-dimensioning, area and perimeter calculation, auto-tracing of
bit maps, and full color support. Creates and edits high-resolution bit
maps to 2,540 dpi. Slightly less powerful DA version available. Requires 1 megabyte, two 800K floppies, System 6.0. \$299. Deneba
Software, 3305 N.W. 74th Ave., Miami, FL 33122. NCP (Apr

Chart can easily create area, bar, column, line, pie, scatter, and combination that charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. \$125. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717.

Click & Clip offers seasonal graphics packages. Of the two quarterly editions released, the Spring '88 package is the better collection. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$39.95 per edition. Studio Advertising Art, P.O. Box 18432-52, Las Vegas, NV 89114. NCP (Aug '88)

Comic Strip Factory is an assembly program for creating comic strips. Includes a \$\$\$\$\frac{1}{2}\$\$ database of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in MacPaint format. \$69.95. Foundation Publishing, 5100 Eden Ave., Suite 307, Edina, MN 55436. NCP (Dec '87)

Cricket Draw is an object-oriented drawing program that will produce stunning,
high-quality output. Designed to print on PostScript-compatible devices,
such as the LaserWriter. \$295. Cricket Software, 40 Valley Stream Parkway, Malvern, PA 19355. NCP (May '87)

Cricket Graph easily generates 12 graph types. Multiple windows can be distitle toolors with up to 16 patterns. Selfgenerating macro formatting. Switcher, HFS, LaserWriter, and plotter compatible. \$195. Cricket Software, 40 Valley Stream Parkway, Malvern, PA 19355. NCP (June '86) ★'86 Eddy

10 reasons why you should switch to New Turbo Mouse.



Fly across even the biggest screen with automatic acceleration. Turbo Mouse® senses the speed at which you're working and moves the cursor further when you move faster.

No rolling room required. With the Turbo mouse ball on top, you move only the ball, not the whole mouse.

T Turbo Mouse offers a second mouse port. Turbo Mouse ADB offers a second ADB port.

One button is for regular / clicking, the other is a click lock. You choose which is which.

5 Advanced two-button design allows for either right or left-handed use!

6 Only 4" by 6", Turbo / Mouse fits neatly beside any Macintosh® or Apple IIGS® keyboard. Perform one of seven functions—Save, Print, Open, Close, New, Quit, or Undo when you click both buttons at once. (Only in Turbo Mouse ADB.)

Turbo Mouse ADB, #62360, works with Mac SE, Mac II, or Apple IIGs. Turbo Mouse, #62358, works with Mac or Mac Plus. Both have a suggested retail of \$169.95.

10 It's easy to find. For a Turbo Mouse dealer near you, just call 1-800-535-4242, or 212-475-5200.

KENSINGTON <

Please circle 144 on reader service card.

o 1988 Kensington Microware Ltd.

Cricket Presents is a presentation tool with strong emphasis on graphics. Good
master template. Lacks import capability for text. Version 1.0. Requires
System 4.2 or later. \$695. Cricket Software, 40 Valley Stream Parkway,
Great Valley Corporate Center, Malvern, PA 19355. NCP (Nov '88)

Crystal Paint creates an electronic kaleidoscope. It is MacPaint's Brush Mirrors gone wild in a small, simple, yet wonderful application. Does not work in color on Mac II. MultiFinder friendly. Requires 512K+. \$49.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Feb '88)

Curator catalogs your art and graphics so it's easy to see what's what and where it

1111 is. Supports PICT, TIFF, EPSF, PostScript, MacPaint, and more. Changes
creator types. Requires 512K and an 800K drive. \$139.95. Solutions
International, 30 Commerce St., Williston, VT 05495. NCP (Sept
188)

DeskPaint is a full-blown paint program as a desk accessory. Allows you to spruce

1144 up a graphic while in another application. Imports and exports MacPaint
and TIFF images. Great for DTP, but not enough features to rival the
leaders in paint programs. Zedcor, 4500 E. Speedway, Tucson, AZ
85712-5305, NCP (Mar '88)

EPS Illustrations is a potpourri of illustrations with no real focus. As an art package, this one is not very useful as you cannot alter any of the drawings. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$129.95. T/Maker, 1973 Landings Drive, Mountain View, CA 94043. NCP (Aug '88)

EZ Draft is a high-level CAD application. Does things usually only found on minityt
computer programs. Uses "pop-up" menus to supplement a full set of
pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. \$1995. \$500 for IEGS module to link to
other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport,
CT 06606. CP (May '87)

FastForms! Construction Kit is both a fast and efficient business forms creator (a titte drawing program) and a specialized application (and DA) to fill out the data fields in your forms. \$149 (U.S.). Shana Enterprises, Advanced Technology Center #105, 9650-20 Ave. Edmonton, Alberta T6N 1G1, Canada. NCP (Nov '87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. \$49.95. Casady-Ware, P.O. Box 223779, Carmel, CA 93922. NCP

FONTastic Plus lets you customize bit-map fonts or even create new ones.

\$\$\$\frac{1}{2}\$\$\frac{1}{2}\$\$ Characters are easily added or modified in fat-bits mode. Version
2.01 edits larger fonts and supports NFNTs. Requires 512K. \$99.95.

Altsys Corp., 720 Avenue F, Suite 109, Plano, TX 75074. NCP (Apr '89)

Fontographer is a complex, but excellent laser font creator. The fonts created tays 300 bits-per-inch resolution. The fonts are actually downloadable PostScript files. \$395. Altsys, P.O. Box 865410, Plano, TX 75086. CP

FontSizer creates high-quality screen fonts of any downloadable PostScript type-\$155% face in sizes up to 127 points. Excellent utility for producing large font sizes with true WYSIWYG. Requires 1 megabyte, PostScript printer, and fonts. Version 1.7. \$99.95. U.S. MicroLabs, 1611 Headway Circle, Building No. 3, Austin, TX 78754. NCP (Apr '89)

FreeHand greatly simplifies the drawing of curves, the use of layers and text handling when manipulating PostScript graphics. And it works in color on the Mac II. Requires 1 megabyte and two disk drives. \$495. Aldus, 411 First Avenue South, Seattle, WA 98104. NCP (Aug '88)

FullPaint is an expanded version of MacPaint. Features include full-screen drawing, up to four documents open simultaneously, brush editing, and movable tool palettes. \$99.95. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (June '86) ★'86 Eddy

Graphic Works 1.1 is a powerful drawing and painting program that creates high-resolution bit-maps. Easels contain graphics, balloons hold text, and both reside on panels. Graphic primitives are now a separate tool. \$149.95. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. NCP (Oct '87)

GraphistPaint II is a powerful color drawing program but has some rough edges.

\$\$\$

Cumbersome drawing environment yet very good at combining and retouching existing drawings. Version 1.0 reviewed. Mac II with 2 megabytes and 8-bit video card required. \$495. Aba Software, Inc., 41 Great Valley Parkway, Malvern, PA 19355. NCP (Apr '89)

Illustrator 88 is a professional-level graphics program from the people who defined the PostScript language. Uses templates for precise drawing and detailed artwork. Requires 1 megabyte. \$495. Adobe Systems. 1585 Charleston Road, Mountain View, CA 94039. NCP (Oct '88)

Image Club is an overwhelming collection of EPS clip art available on disk and CD-11111 ROM. Comes with a well-designed catalog of images. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$99. Image Club Graphics, 2915 19th St. N.E., Calgary, Alberta, Canada T2E 7A2. NCP (Aug '88) ImageStudio puts a photo-retouching lab on the desktop. Editable brushes let
\$\$\$\$\$\$ you modify digitized images in 65 gray levels. Version 1.0 reviewed.
Requires 1 megabyte + and two 800K disk drives. Mac II and MultiFinder
friendly. \$495. Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653.
NCP (June '88)

Images with Impact! brings clip art out of the turn-of-the-century woodcut style and into a modern graphic sensibility. "Graphics and Symbols 1" is the first in a series. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$99.95. 3G Graphics, 11410 N.E. 124th St., Kirkland, WA 98034. NCP (Aug '88)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip art. Consists of \$3\$\\$\%\$

MacPaint documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matter. \$79.95 each volume; \$149.95 each set. Qualitas Trading, 6907 Norfolk Road, Berkeley, CA 94705. NCP (Apr '87)

LaserFonts are new fonts for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. Willamette looks like Avant Garde. MicroFonts provides tiny, expanded, and condensed versions of the LaserWriter's own fonts. \$34.95 to \$44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

LaserPaint's clumsy interface makes it a slow program. There's good laser output if you persevere through the creation of a document. The support is scads better than the documentation. Version 1.1.4. \$495. LaserWare, P.O. Box 668, San Rafael, CA 94915. CP (Jan '88)

Lasertalk is a PostScript programming tool that establishes interactive contact

15111 with laser printers. Preview window and on-line help make it a powerful
tool. Requires 1 megabyte + and a PostScript Printer. \$249. Emerald
City Software, P.O. Box 2103, Menlo Park, CA 94026. CP until registered
(May '88)

Mac Art Dept. is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. \$39.95. Simon & Schuster, Computer Software Div., 1 Gulf + Western Plaza, New York, NY 10023. NCP (Mar '86)

MacCalligraphy simulates brush painting. User-designed Seals and Touches enable you to design your own signature tool and the style of brush you use. Takes some getting used to. \$175. Qualitas Trading, 6907 Norfolk Road, Berkeley, CA 94705. NCP (Feb '88)

MacDraft is an object-oriented graphics program. It sports advanced features such as variable scaling, single-degree rotation, complex arcs, auto dimensioning, and variable zoom/reduction. \$269. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (Feb '86)

MacDraw is an object-oriented graphics program. Can be used to design forms, \$\$\$\$\$ create presentation materials, and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Lacks free notation or zoom-in capabilities. \$195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov '85) ★'85 Eddy

MacDraw II updates the venerable object-oriented draw program. Adds dithered and color patterns in its own documents, but doesn't support color in the PICT II format. Version 1.0. Requires 1 megabyte, and two 800K disk drives or hard disk. \$395. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov'88)

MacGraphics is an overwhelming collection of bit-mapped clip art—13 thematic disks containing 10 megabytes of art. Unfortunately, most pictures are full-page, and reproduction quality suffers when they are reduced. Version 3.0 reviewed. \$225. GoldMind Publishing, 12155 Magnolia Avenue, Suite 3-B, Riverside, CA 92503. NCP (Jan '89)

MacPaint hasn't lost its shine after all these years. Version 2.0 supports multiple windows, design templates, and a magic eraser for corrections. It lacks free rotation or distortion talents. Requires 512K and second disk drive. \$125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (July '88) *85, '87 Eddy

Mac3D is a feature-laden 3-D program with a MacDraw-like interface. PostScript15144 resolution shading with six variable light sources, user-definable tools, and many more features. Clumsy interface to rotate objects and camera. Version 2.0. \$249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan '87)

MapMaker is a digital cartographer that charts demographic and marketing information on a geographic basis. Wide variety of maps available, some at an additional cost. Version 3.0. Requires 512K. \$349. Select Micro Systems, 40 Triangle Center, Yorktown Heights, NY 10598. NCP (Dec '88)

MGMS: Professional CAD for MacIntosh offers more than 200 functions. Very the state of the experienced program. Groups, Dimension, and Libraries are standard. Sometimes confusing — designed for the experienced, professional CAD user, not the novice. Full plotter support. 512K+. \$799. Micro CAD/CAM, 5900 Sepulveda Blvd., Suite 340, Van Nuys, CA 91411. NCP (Nov '87) ★'87 Eddy

MiniCad is a pro-level CAD package. Vast array of features, many accessible only through Command/Shift/Option key combinations. Works in 2-D or 3-D with easy transition from one to the other. MacDraw-like interface makes it easy to learn and use. Version 3.0. Requires 512K+. Diehl Graphsoft. 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct '87)

"Is there something we missed?"



Is there anything missing in the new ACCEL-500 24-pin dot matrix printer?

Not performance. ACCEL-500 can zoom through drafts at 480 cps. Print charts and graphs in dazzling color. And combine letter quality with high resolution color graphics.

Not versatility. ACCEL-500 is compatible with ImageWriter* LQ and most popular printers. So it's equally at home on Macintosh* and IBM*compatible PCs. And there's a paper-handling option for every office application.

Not convenience. ACCEL-500's innovative Select-Dial™ makes paper handling a snap. And plug-in Intelli-Cards™ add fonts and printer emulations instantly.

Not reliability. ACCEL-500 is a 'round-

the-clock workhorse that takes even the most demanding workload in stride.

And certainly not value. ACCEL-500 is priced far below leading printer brands that offer far less capability.

In fact, it seems the only thing missing from the ACCEL-500 is you.

ACCEL-500

Advanced Matrix Technology 765 Flynn Road, Camarillo, CA 93010

(800) 992-2264

(805) 388-5799

Please circle 4 on reader service card.

MINIFINDERS = 5

Modern Artist 2.0 is still an interesting color paint program and has added a few new features, but there's not enough here to justify the substantial price increase, Requires Macintosh II, \$495, Computer Friends, 14250 N.W. Science Park Drive, Portland, OR 97229. NCP (Feb '89)

PictureBase is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. \$69.95. Symmetry, 761 E. University Drive, Mesa, AZ 85203. NCP (Sept '87)

Pixel Paint is a color paint program with customizable palettes and a lot of special tttty effects. Slow Open and Save. Requires Mac II, 2 megabytes, and 8-bit video card. \$495. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043, NCP (May '88)

Post Art I is a collection of signed originals on disk. Overall, a pretty useless collection in terms of clip art. Meant for hanging prints on a wall. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$69.95. Olduvai, 7520 Red Road, S. Miami, FL 33143. NCP (Aug '88)

PowerPoint is an easy-to-use desktop presentation tool. Good color schemes. Can send presentations to Genigraphics to produce color 35mm slides. Version 2.0. Requires System 4.1 or later, 1 megabyte and two 800K drives or hard disk. \$395. Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073-9717. NCP (Aug '87)

The Print Shop makes it easy to create greeting cards, signs, banners, and letterhead. Uses its own special graphics and can import Paint files. Harddisk users get version 1.02 or later, \$79.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP (Sept '87)

Space Edit is a 3-D CAD program. Display shows top, front, side, and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 1 megabyte + . \$625. Abvent, 9903 Santa Monica Blvd., Beverly Hills, CA 90212. CP (July '87)

StandOut! is a presentation program built like a publishing program, with strong text and graphics support. Automatic text flow around graphics objects. Lacks good graphic examples. Version 1.0. Requires 1 megabyte and two 800K drives or hard disk. \$395. Letraset, 40 Eisenhower Drive, Paramus, NJ 07652. NCP (Nov '88)

Studio/8 is a professional-level color paint application for the Mac II. Superior tool set, elegant interface, excellent performance, and speed. Version 1.0. Requires Mac II and hard disk; 2 megabytes of RAM recommended. \$495. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Jan '89)

SuperPaint is a powerful, easy-to-use graphics program with all the best \$\$\$\$% features of MacPaint and MacDraw — and then some. LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. \$149.95. Silicon Beach Software, 9580 Black Mountain Road, P.O. Box 261430, San Diego, CA 92126, NCP (Feb '87) ★'87 Eddy

Super 3D is a high-power 3-D modeling program with an excellent integrated interface. Powerful time-saver. Features include animation, import/export of 3-D worlds as text illes. Excellent for art, design, or technical work. Version 1.0. Requires 1 megabyte. \$295. Silicon Beach Software, 9580 Black Mountain Road, P.O. Box 261430, San Diego, CA 92126. NCP (Jan '88)

Swivel 3D quickly forms shaded solids in full color. Casts true shadows onto other \$\$\$\$\$ objects, and can project color graphics onto solids. Objects can be linked as jointed and sliding mechanisms that can be operated without accidental dismantling. It can tween-animate objects or fly your view through a scene, saving frames for playback. Superb object-manipulation interface. Version 1.0. Requires 1 megabyte, Mac Plus, two 800K floppies. \$395. Paracomp, 123 Townsend St., Suite 310, San Francisco, CA 94107. NCP (Mar '89)

Trapeze is a powerful presentation worksheet that combines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. Version 2.0. \$395. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Dec '87)

TrueForm takes a scanned image of a paper form and turns it into an electronic equivalent, complete with fields for entering data. It can automatically sum numeric fields. Requires external 800K drive. \$495; run-time version, \$295. Spectrum Digital Systems, 2702 International Lane, Madison, WI 53704-3122. NCP (May '88)

A GOOD STORY IS WORTH REPEATING...

Especially if it's about your product!

Why let your story remain hidden in a back issue of one of the world's leading computer magazines?

Let us take your article to its highest level of marketing potential with a reprint! This is one of the most valuable marketing

It represents unbiased coverage of your product by America's leading computer magazine!

It clearly discusses your products features and capabilities!

It is one of the most effective ways of telling your story to new customers, retailers, jobbers and distributors.

To find out how you can have your article or review elegantly reprinted * * on 80 lb. paper stock, in

4-color, 2-color or 1-color, call or write today: Jennifer Locke —Reprints Manager:

Ziff-Davis Publishing Company,

One Park Avenue, New York, NY 10016, 212-503-5447.

"Minimum quantity 500 reprints.



THE BEST ACCOUNTING PACKAGE FOR YOUR SMALL BUSINESS. WE GUARANTEE IT.

About two dozen accounting packages run on the Macintosh®. How can you be sure you're choosing the one that's just right for you?

Monogram Business Sense™ makes it simple. Buy it. Try it. If you're not completely satisfied, return it to us within 60 days and we'll exchange it for any accounting program of equal value. Any accounting program.

We're that confident.

Ledger, Accounts Payable,
We're that confident.

Business Sense is a fullyintegrated, full-featured program
that's exceptionally easy to learn
and use. There simply isn't a
better accounting package for

small businesses.

\$567.82 # File Edit Function GL Report AR/AP/Payroll Rep \$0.00 Accounts Payable Days Until Due | LEARNED LUMBER CO. \$567.82 \$1135 64 2/28/1988 \$1803.46 15-30 \$2271.28 01/30 AS 3258 03/17 AS 3350 822 0 625.0 \$2739.11 822.0 625.0 Clark Products 03/27 557030 242 9 242 8 242.8 3595.4 2362.8 Totals 2362.8 5958.35 9 03/01 22591 03/24 22690 579.40

Business Sense helps you anticipate your cash flow needs by aging forwards as well as backwards.

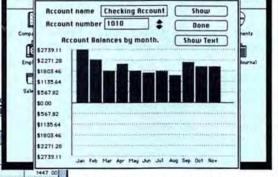
It's ideal for companies of one to 50 employees; up to 500 vendors and 2,000 customers. It handles checks up to a trillion dollars! It's powerful enough for a CFO, but accessible enough for a CEO.

Other accounting software can be difficult to use—even user-hostile.

Business Sense is easy to use—

even for non-accounting personnel. Instead of dealing with "integratable modules," you have one program disk with all the functions built in: General Ledger, Accounts Payable, Accounts Receivable, Payroll, Invoicing and Budgeting. They all work alike. Moving from one to another is as easy as pulling down a menu.

5:26:15



Nearly every aspect of your financial situation can be reported in tabular or graphic format.

This extraordinary ease of use comes from the fact that Business Sense was designed for the Macintosh *from scratch*.

You won't find any of the balkiness of programs designed for other computers.

It's a bargain at under \$500. And it's from Monogram, publishers of Dollars and Sense®, the world's best-selling personal financial management program.

So now your choice is easy. Business Sense. The best accounting program for your business. We guarantee it. General Ledger • Manages multiple companies, up to 2,000 accounts, five bank accounts, 99 departments or profit centers; unlimited transactions. • Handles checks to \$1 trillion.

 Automates recurring entries.
 Distributes data automatically on posting.
 Transactions can be reversed.
 Provides multiple open months.
 Imports Dollars and Sense files.

Invoicing • Easy to use •Fully integrated into AR and GL.

Accounts Receivable • Provides detailed history and analysis for up to 2,000 customers, with credit limit warning and automatic credit memos. • Calculates and applies finance charges and discounts. • Handles partial payments. • Tracks commissions. • Produces aging reports.

Accounts Payable •Manages up to 500 vendors. •Tracks invoice date, due date and discount date. •Details aging for cash flow analysis. •Allows partial payments. •Prints 1099 forms. •Provides vendor analysis.

Payroll •Manages up to 100 employees, 10 withholding and wage categories plus tips and fringes. •Prints W-2 forms and checks and handles federal and state taxes.

Budgeting •Sophisticated and flexible, reporting on departments, divisions and projects for any time period.

See your dealer or call Monogram for a brochure with a complete feature list.

MONGRAM

531 Van Ness Avenue, Torrance, CA 90501
 (213) 533-5120 FAX: (213) 533 1365
 Please circle 100 on reader service card.



Guarantee: Purchase Business Sense Version 1.2 between January 1, 1989 and June 30, 1989. If for any reason you are dissatisfied with it, return the complete package to us within 60 days of the purchase date and indicate which software program you would like in exchange. You may choose any Macintosh accounting program generally available at retail, regardless of publisher, with a publisher's suggested retail list price up to the \$495 suggested retail list price of Business Sense. If you wish to trade for a more expensive program, you must make up the retail price difference. No cash refunds.

MINIFINDERS =

VersaCAD is a powerful CAD program that doesn't show any of its MS-DOS roots. Excellent element manipulation, full plotter support. Library user interface is crude. Requires 1 megabyte +. \$1,995. VersaCad, 2124 Main St., Huntington Beach, CA 92648. NCP (July '88)

VideoWorks II is an easy-to-use animation tool — the best available on the Mac. Has an Overview mode that acts as a slide show carousel for presentations. Works in color on the Mac II. \$195, Requires 1 megabyte + and an 800K drive. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Mar '88) *'85, '87 Eddy

VideoWorks II Accelerator compiles VideoWorks II movies to make them run more smoothly. Compensates for the QuickDraw screen display. Version 1.0. Requires 1 megabyte, VideoWorks II; hard-disk drive recommended. \$195. MacroMind, 1028 West Wolfram, Chicago, IL 60657. NCP (Dec

VideoWorks II Clip Animation, Clip Charts, Black and White Movies, and Clip Sounds are four separate aids to help you construct movies and business presentations. Requires VideoWorks II. \$49.95 to \$59.95. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Aug '88)

WetPaint consists of two three-disk volumes of very high quality clip art. Also \$\$\$\$\$ includes the Art Roundup DA, a good art browser/editor. Volume 1 or 2, \$39 each; both volumes, \$59. Available in PictureBase format for \$15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sept '87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the Mac the Knife fonts and a lot more, including two useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: \$39; both volumes: \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec '86)

DESKTOP PUBLISHING

DTP Advisor combines a HyperCard-based tutorial on publishing with a project-\$\$\$ management system. Beautifully designed but better off as a book. Requires 1 megabyte and HyperCard 1.2. Version 1.0. \$79.95. Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. NCP (Apr '89)

Interleaf Publisher is a speedy multiuser layout system for producing large, complicated documents. Version 3.5 has an improved user interface, but it still suffers from poor font management. Requires Mac II with 5 megabytes of RAM and hard disk. \$2,495. Interleaf, 10 Canal Park, Cambridge, MA 02141. NCP (Apr '89)

JustText is a professional-level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. \$195. Knowledge Engineering, G.P.O. Box 2139, New York, NY 10116. NCP (Dec '85)

MacTEX is the TeX environment of choice for hardcore TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Version 2.0. Requires 1 megabyte +. \$750. FTL Systems, 234 Eglington Ave. East, Toronto, Ontario M4P 1K5, Canada, NCP (Apr '88)

PageMaker retains its paste-up approach to page layout. New features include auto text flow, style sheets, and spot color support. The standard keeps getting better. Version 3.0. Requires 1 megabyte +, and a hard disk. \$595. Aldus, 411 First Ave. South, Seattle, WA 98104. NCP (Aug '88) * '85, '87 Eddy.

Portfolio: Designs for Newsletters provides more than 20 templates for twopage newsletters with preset columns, headlines, graphics, and captions. Documentation provides excellent tutorial in page design. Requires 512K+; PageMaker, \$79.95. Aldus, 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May '87)

Publishing Packs bundle together three Adobe typefaces that work well for a particular publishing project. The packages offer substantial savings over purchasing the typefaces individually, and the documentation has useful information on typeface characteristics. Newsletters, \$395; Forms & Schedules, \$475; Presentations, \$475. Adobe Systems Inc., 1585 Charleston Road, Box 7900, Mountain View, CA 94039, NCP (Feb '89)

QuarkStyle is a collection of 72 designer-created templates for "instant" desktop publishing. The templates, which cover the gamut from business cards to newsletters, let you concentrate on a page's contents rather than its appearance. Version 1.0. Requires 1 megabyte and hard disk. \$295. Quark, 1983 Landings Drive, Mountain View, CA 94043. NCP (Feb '89)



MUVING?

Please write to:

MacUser P.O. Box 56986

Boulder, Colorado

80322-6986

MacUser for

Please include your mailing label from a recent issue of

FASTER service.

Allow up to 60 days

for change of address to take

place.

Please circle 147 on reader service card.

How to avoid making backups.

Make Irwin*do it.

An Irwin tape backup system, that is.

So go home early. Because an Irwin system will back up your data, your programs, your breakthrough

ideas—all automatically.
No complicated
commands.

No sloppy floppies.
Our EzTape* software
makes it easy to store

whatever data you want. Whenever you want.

It doesn't matter whether you're backing up a Mac or a PC.

An Irwin backup system works with them all. Along with all the popular local area networks. Providing up to 80 megabytes of reliable storage.

In fact, with its patented AccuTrak™ precision tracking technology, you can transfer data from a Mac to a PS/2 to a PC and back again.

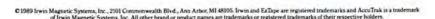
Something that would throw a floppy right off its track.

All in all, that's why more people rely on Irwin minicartridge systems to do their backup than all others combined.

Just call 1-800-BACKUP1 for the

dealer nearest you.

Because the best way to make backups is to avoid it.



QuarkXPress is a powerful page-layout program, with 24-bit color, style sheets,
\$\$\frac{1}{2}\frac{1}{2}\text{ and search and replace of text attributes. Also does four-color separations. Layout is done using text and picture boxes, which improves control but is difficult to master. Version 2.0. Requires more than 1 megabyte
as well as a hard disk. \$795. Quark, 1983 Landings Drive, Mountain
View, CA 94043. CP until registered. (Jan '89)

View, CA 94043. CP until registered. (Jan '89)

Ragtime is an "Integrated Page Processor" with text, graphics, and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy-to-use program. Requires 512K+. \$395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Aug '88)

Ready,Set,Gol 4 has an elegant interface and excellent manual. Powerful text

ttti

wraparounds, fast word processor with hyphenation and spelling check
and custom stylesheets. Requires 1 megabyte +. \$495. Letraset, 40

Eisenhower Drive, Paramus, NJ 07652. NCP (Feb '88) ★'86 Eddy

TeXtures is an implementation of TeX, the big daddy of typesetting programs.

\$\$\$\$ Good for people trained on mainframes in the early days. Otherwise very sticky with a high learning curve. Version 1.0. Requires 512K+. \$495. Blue Sky Research, 534 S.W. Third Ave., Portland, OR 97204. NCP (Apr '88)

COMMUNICATIONS

AppleShare is the file sharer marketed by Apple. Software-based, AppleShare requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised Finder. \$799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May '87)

ComServe allows you to share a Hayes-compatible modem over an AppleTalk network. You can call out, but you can't call in. Works with most telecommunications packages. \$195 per server. Infosphere, 4730 S.W. Macadam Ave., Portland, OR 97201. CP (Feb '88)

Desktop Express is a simple-to-use, semi-automated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded off for ease of use. Requires 512K+. \$149. Dow Jones, P.O. Box 300, Princeton, NJ 08543. NCP (Jan '88)

InBox is an easy-to-use mail system. It's called up from a desk accessory. Has a \$\$\$\$\frac{1}{2}\$\$\frac{1}{2}\$\$ very slick interface. Dedicated Mac not required. \$350 for starter set, which includes one Administrator disk and three Connection disks. Additional Connections cost \$125 each. Tops, 950 Marina Village Parkway, Alameda, CA 94501. NCP (May '87) ★ 86 Eddy

InTalk comes with its own communications command language able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. \$195. Palantir, 12777 Jones Road, Houston, TX 77070. NCP (Prem)

LapLink Mac quickly transfers data to and from the MS-DOS and Mac environments. Kit contains a cable and software. Control of transfer is on the IBM side. Version 1.2. Requires 512K. \$139.95. Traveling Software, 19310 North Creek Parkway, Bothell, WA 98011. NCP (Aug '88)

MacTerminal provides basic telecommunications and terminal emulation.

1 Doesn't have macros nor any sort of auto redial/auto log-on capability.

1 Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

MacWorkStation is a development environment and communications program that accesses custom mainframe applications through the Macintosh interface. Modular design allows for expandability, Mac II and MultiFinder friendly. Version 3.0. \$2,500 for internal use license, \$5,000 for commercial use license. Apple Software Licensing, 20525 Mariani Avenue, Cupertino, CA 95014. NCP (Oct '88)

MicroPhone II is a high-powered terminal program that's easy enough for novices.

\$\$\$\$%
Very powerful command language allows full automation of communications if desired, \$295. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jan '89) ★'86 Eddy

Microsoft Mall is an electronic mail system that runs under AppleTalk. Supports \$155% file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, \$299.95; five to 10 users, \$499.95; 11 to 20 users, \$749.95; 21 or more users, \$949.95. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP (May '87) *87 Eddy

PC MacTerm/pcAnywhere III are two programs that work together to take control

\$3\$\$
of an MS-DOS machine from the Mac keyboard. Versions: PC MacTerm
1.1; pcAnywhere III 3.0. Requires 512K; System 4.1 or later; 128K IBM
PC compatible and MS-DOS 2.1 or later. PC MacTerm, \$99; pcAnywhere
III, \$145. Dynamic Microprocessor Associates, Inc., 60 East 42nd St.,
New York, NY 10165. NCP (Jan '89)

Red Ryder is a full-featured telecommunications program that supports MacBinty, Xmodem, and Kermit. Has big screen-support, auto procedure creator, and up to 30 keyboard macros. Version 10.3 reviewed. \$80. Freesoft, 150 Hickory Drive, Beaver Falls, PA 15010. NCP (Jan '89) ★'87 Eddy

Smartcom II balances power and ease of use. Capable of unattended operation and has a powerful command language. The fastest screen updating available can keep up even at 9,600 baud. The large-screen buffer can easily be archived. Version 3.0 reviewed. \$149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jan '89) ** 85 Eddy

TOPS is a file server designed to network computers with different operating systems. Supports Macs, MS-DOS compatibles, and UNIX. Access to files and subdirectories is transparent to the user; they appear as Mac folders. Only handles ASCII or Text files. \$249 for Mac version. TOPS, 950 Marina Village Parkway, Alameda, CA 94501. Serial number protected. (May '87) ★'87 Eddy

VersaTerm-Pro is a very powerful terminal program with several special features.

\$\$\frac{1}{2}\frac{1}{2}\frac{1}{2}\text{Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. \$295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mount Penn, PA 19606. NCP (Apr '87)

WORD PROCESSORS

ArchiText is a text processor with many hypertext capabilities, as well as the
\$\$\$\$\$ ability to include graphics. "Nodes" of text are accessed by means of
different "maps." Very powerful. Version 1.0 reviewed. Requires 1 megabyte. \$349.95. Brainpower, 24009 Ventura Blvd., Suite 250, Calabasas. CA 91302. NCP (Feb '89)

Document Compare allows users to compare any two MacWrite 4.5, ASCII, or \$35

MDS documents. Differences in spelling, punctuation, formatting, and wording are detected. Documents can be printed out with differences highlighted. \$99. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (May '86)

Document Modeler can automate much of a professional office's correspondence. Comes in two parts: Template Maker and Document Maker. Initial setup requires time and is complex. \$299.95. Legalware, 33 Young St., Toronto, Ontario M5E 159, Canada. NCP (Mar '87')

Doug Clapp's Word Tools is a useful punctuation and style-editing program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. \$79.95 Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sept '87)

Expressionist is a powerful DA that allows you to create complex mathematical equations from within an application. Equation manipulation has never been easier. \$79.95. Allan Bonadio Associates, 1579 Dolores St., San Francisco, CA 94110. NCP (July '87)

FullWrite Professional combines outlining and word processing with page layout and drawing. Its many features translate into sluggish performance unless you have a lot of extra RAM. Impressive. Version 1.0. Requires 1 megabyte. Mac II and MultiFinder friendly. \$395. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502. NCP (Sept '88)

Graham Speller is a desk accessory-based spelling checker. Includes macro feature. Good guesser in interactive mode. Clumsy interface. Version 1.1. \$44.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Sept '88)

Kadmos Greek Font is a full character set of ancient Greek that prints on any
PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. \$85. Allotype Typographics, 1600 Packard Road, Ann Arbor, MI 48104. NCP (Oct '87)

Laser Author is a high-powered, technically oriented word processor. Good mathsetting capability. Has style sheets, word count, and page layout capability. \$199.95. Firebird Licensees, P.O. Box 49, Ramsey, NJ 07446. NCP (Mar '87)

Liberty Spell Checker is a fast, effective, interactive checker. The dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. \$59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct '86)

Lookup is an on-call, quick, single-word spelling checker. Designed for the way writers really work. Uses the 93,000+ word Spellswell dictionary. \$49.95. Working Software, 321 Alvarado, Suite H, Monterey, CA 93940. (Dec '87) NCP

MacGAS is a DA spelling checker with both a small and extended dictionary. Its best point is the excellent thesaurus. Provides antonyms and glossary. A slow checker. \$99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct '86)

MacProof is a grammar, style, and spelling checker that's like having your own \$\$\$\$\frac{1}{2}\$\$\frac{1}{2}\$\$ personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. \$195 for stand-alone version; \$2,500 for networked version. Automated Language Processing Systems, 190 W. 800 North, Provo, UT 84604. NCP (Apr '87)



The fastest way to learn software is to have an expert sit beside you and talk you through the program, step by step. With your hands on the keyboard, trying each new skill as it's explained, learning is a snap.

So Personal Training Systems gives you that expert—on an audio cassette. Each 90-minute tutorial contains the cassette, example files on a disk, and a quick reference card. It's like having your own private tutor... only this one works anytime, anywhere, and doesn't charge by the hour.

In addition to training on the Macintosh itself, tutorials are available for Microsoft Excel, Word and Works; Aldus PageMaker and Persuasion; Adobe

Personal Training Systems®

	3 4		Į.	N	8	8		q		е			8	3	Р		1		П	•	回	П	Е	19	4	4	
PAGE TL	PAGE TI	LEARN	PREVEN	LIEARN	LEARN	LEARN	LIEARN	EXCELL	EXCELL	EXCELL	EXCRE	МАМИ	НЗВ	HYPER	HYPER	DEScent	URABBI	Crist Man A	MARTE	MASTE	CHARLES OF	MASSE	WOLL AND	MACTE	D MAKE TE	ADDE NO.	
PAGETUTOR	HOIL	MORROGAM	NOMBORBERS	00	00	90	BI	ERATE	BIARE	BRATE	MATE	ABA	ABVI	CABY	ABY	CHICAN	WORLD.	OSSO	SWEDWE	BAHOWE	SABOWE	RABOWE	ACH	ACM.	ADM		1

Illustrator 88; and HyperCard. Since we offer beginning, intermediate and advanced levels for each software program, there's sure to be one that meets your needs.

All our tutorials are unconditionally guaranteed. You'll learn how to use your Mac or favorite software program—without opening a book or attending a class—or your money back.

So if you're looking for a fast, convenient, affordable way to learn, contact Personal Training Systems by calling 1-800-TEACH-99, or mail in the coupon below. Because the more you listen, the more you'll learn.

☐ YES, please send me	your latest catalog.
Name —	
Company —	
Street	
City —	State
7in Daytin	ne Phone

Macspell + is a spelling checker that installs as a desk accessory. Works easily with MacWrite 4.5 and 2.2 and Word, but has some drawbacks. New version 1.10 just available. Requires 512K+, two drives or hard disk. \$99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

MacWrite is starting to show its age. While still a good, basic program, it's outtitle performed by its competition. Probably enough for the occasional user.

Version 5.0 includes command key equivalents and spelling checker.

Requires 512KE+. \$125. Claris, 440 Clyde Ave., Mountain View, CA
94043, NCP (June '88) ★'85 Eddy

MergeWrite is a mail-merge program for MacWrite (also works with ASCII files).

\$15.4

Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. \$49.95. Software Discoveries, 137 Krawski Drive, South Windsor, CT 06074, NCP (Dec '87)

MindWrite integrates outlining and word processing better than anyone. Version

1.1 fixes many problems of the earlier version. Sophisticated search and select options. Unimpressive speed. \$295. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Feb '88)

QUED/M is an excellent text editor that saves documents in a form readable by the same strong printers. Doesn't support graphics or multiple fonts. Programming language allows creation of database. Version 2.01. \$129. Paragon Concepts, 4954 Sun Valley Road, Del Mar, CA 92014. NCP (Mar '88)

QuickLetter is a well-designed and -implemented DA for the creation of letters

\$\$\$\$\frac{1}{2}\$\$ and envelopes. You can create stationery, complete with graphics, and
maintain an address book including salutations. It's the best envelope
creator/printer in any word processor. Version 1.0. Requires 128K.
\$124.95. Working Software, P.O. Box 1844, Santa Clara, CA 950619907. NCP (Apr '89)

Scriptor is designed for producing standard-format scripts. Starts with a Word document. As you change your Word document, Scriptor will reformat, renumber, and reprint the script. Supports LaserWriter and daisywheel printers. \$295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May '87)

Sensible Grammar corrects some of the more glaring errors that writers make.
\$15\$
Also analyzes the word count and structure of sentences to come up with a readability rating. Slow. Version 1.1d. Requires 512K. \$99.95. Sensible Software, 335 E. Big Beaver, Suite 207, Troy, MI 48083. NCP (Dec. 188)

Spelling Champion is a fast and accurate batch-type spelling checker. Back-up feature allows you to undo corrections in a paragraph. Works only with MacWrite 4.5. \$39.95. Champion Software, 6617 Gettysburg Drive, Madison, WI 53705. NCP (Oct '86)

Spelling Coach Professional is a desk accessory and stand-alone spelling checker as well as thesaurus. Includes dictionary definitions. Off-the-wall phonetic guesses. Version 3.0. \$195. Deneba Software, 7855 N.W. 12th Street, Suite 202, Miami, FL, 33126. NCP (Sept '88)

Spellswell is a stand-alone batch spelling checker. Also checks for punctuation and other errors. Good dictionary, thorough checking, simple interface. Weak guessing. Version 2.0. \$74.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95061. NCP (Sept '88) ★'86 Eddy

Thunder! is a desk accessory spelling checker. Includes macro features. Fairly
\$\$\$\$\frac{4}{3}\$\$ fast, good guessing of misspelled words. Small dictionary. MultiFinder
hostile. Version 1.1. \$49.95. Electronic Arts, 1820 Gateway Drive, San
Mateo, CA 94404. NCP (Sept '88)

Word Finder is an electronic thesaurus that won't replace your trusty Roget's, but is still useful for checking synonyms on the fly. Large, respectively. Version 2.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. Microlytics, 300 Main St., Rochester, NY 14445. NCP (Sept '88)

Word 3.02 is the most feature-laden word processor around. Also has Microsoft's somewhat unusual view of what the Mac interface is. Esoteric command key combinations. Requires 512K+. \$395. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073. NCP (Mar '88)

WordPerfect is a good choice for offices needing compatibility, but not so hot otherwise. Good internal file-management system and macro maker. Uses hidden formatting codes, hierarchical menu system. Requires Mac 512KE, System 4.1 or later. Two 800K disk drives or a hard disk recommended. Not fully compatible with System 6.0. \$395. WordPerfect, 1555 N. Technology Way, Orem, UT 84057. NCP (Feb '89)

WorksPlus Spell is a speedy spelling and hyphenation checker for Microsoft

\$\$\$\$\times\$\times\$ Works. It includes a glossary for abbreviations and time/date stamping.

The biggest drawback is its limitation to one program, \$59.95. Lundeen

& Associates. P.O. Box 30038, Oakland, CA 94604. NCP (Oct '87) ★'87

Eddy

Write is a "beginner's" version of Word 3.0. More features than some word processors in its class, but not all of the features work well. Poor value, and expensive upgrade path to Word. \$175. Requires 512K+. Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073-9717, NCP (May '88)

**WiteNow for the MacIntosh has many of the features of MacWrite and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. \$175. T/Maker, 1973 Landings Drive, Mountain View, CA 94043. NCP (Mar '87)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index-card metaphor and it contains a programming language, HyperTalk. Requires 1 megabyte +. Free with new Macs and bundled with many HyperCard stacks, otherwise \$49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec '87) ★ 87 Eddy

SoftPC puts an IBM PC/XT inside your Mac without cracking the case to add any special coprocessor boards. The emulation of an MS-DOS machine is done entirely in the software. Version 1.2. Requires Mac II or SE equipped with 68020 accelerator card; 2 megabytes of RAM. \$595. Insignia Solutions, 1255 Post St., Suite 625, San Francisco, CA 94109. NCP (Nov '88)

System Tools 5.0 is the Apple System upgrade for Mac Plus, SE, and II owners. It contains MultiFinder (a multitasking environment), a LaserWriter spooler, and a Control Panel resource to add color on the Mac II desktop. Requires 1 megabyte +. \$49. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar '88)

System Tools 6.0 contains an improved version of MultiFinder and new features like CloseView (for visually impaired users), Map, and MacroMaker. Incompatible with many programs; lots of small bugs. Requires 1 megabyte. \$49. Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014. NCP (Nov '88)

HYPERCARD

Business Class is a HyperCard stack that contains world travel information and
titnerary planning. Uses maps to locate countries of interest, but it lacks
United States domestic travel information. Requires 1 megabyte + and
HyperCard. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA
94025. NCP (Mar '88)

City to City imparts travel information on 31 U.S. cities including details on hotels, restaurants, and nightlife. Helps plan an itinerary. Requires HyperCard, two disk drives, and a printer. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Sept '88)

Focal Point is a HyperCard stack that ties together a calendar, phone log, client accounts, and more in one easy-to-use organizational tool. Requires 1 megabyte + and HyperCard. \$99.95. Activision, 3885 Bohannon Drive, Menio Park, CA 94025. NCP (Mar '88)

HyperAnimator enables you to create talking heads for your HyperCard stacks.

1. Use MacinTalk or provide digitized sounds. Easy to implement. Version
1. O reviewed. Requires 1 megabyte, System 6.0, HyperCard. \$149.95.

Bright Star Technology, Inc., 14450 N.E. 29th, Suite 220, Bellevue, WA
98007. NCP (Feb '89)

HyperAtias is a collection of U.S. and World maps that are networked to stacks containing economic, political, and population data. Version 1.0. Requires HyperCard and second disk drive or hard disk. \$99. MicroMaps Software, P.O. Box 757, Lambertville, NJ 08530. NCP (Oct '88)

HyperDA lets you browse through HyperCard stacks through a desk accesso-1311 ry. A true equalizer for 512K Mac owners who cannot normally access 12K stackware. Doesn't support global variables. Requires 512K + . \$69. 12K symmetry, 761 E. University Drive, Mesa, AZ 85203. NCP (May 188)

HyperTutor is a stack that teaches HyperTalk, Hypercard's programming language. Uses an interactive Test Mac on each card to write scripts. A variety of windows makes it good for both beginners and advanced programmers. \$49.95. Channelmark, 2929 Campus Drive, San Mateo, CA 94403. NCP (Apr '88)

MacIntosh Bible: STAXI Edition is a collection of Macintosh tips in a stack, \$3\$ based on the book by Coleman and Naiman. Version 1 reviewed. Requires 1 megabyte, second 800K drive, HyperCard. \$79.95. STAXI, 8008 Shoal Creek Blvd., Austin, TX 78758. NCP (Mar '89)

Reports endows HyperCard stacks with the power to sort and impart information like a database. Customizing reports is difficult. Requires HyperCard. \$99.95. Activision, Inc., 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Aug '88)

ScriptExpert helps you generate HyperTalk scripts by leading you through the torrect use of the language. Select a common command, and dialog boxes prompt you for necessary components. Version 1.0. Requires HyperCard. \$79.95. Hyperpress Publishing, P.O. Box 8243, Foster City, CA 94404. NCP (Oct '88)

Backing Up for the Future.



Fast, reliable and convenient, the PCPC JETSTREAM is the most advanced tape backup system available today.

The PCPC JETSTREAM is a super high performance system. It will archive over 2 gigabytes of data at speeds up to 14.4 Mb per

minute. You can now back up multiple drives onto a single, low cost 8 mm video tape cartridge.

The JETSTREAM allows

you to schedule backups to take place even when you're not around. It's the backup for the future...and it's available today.

> Call PCPC at 1-800-622-2888 or 1-813-884-3092 for more information and the name of your nearest dealer.

Personal Computer Peripherals Corporation

\$99.95. MacroMind, 1028 West Wolfram, Chicago, IL 60657. NCP (Dec '88)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practically all the
\$\$\$\$\frac{1}{2}\$\$ power of a stand-alone program, and then some. Can save files as Acta
outlines, MacWrite files, or text files. Version 2.0. \$79. Symmetry Corporation, 761 E. University Drive, Mesa, AZ 85203. NCP (Oct '88)

Comment is an electronic version of Post-it Notes. A mini-word processor lets you attach notes to a spreadsheet cell, to words in a text document, or to a window on the desktop. Version 2.0. Requires 512KE. \$99.95. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. NCP (Dec '88)

Design is a powerful organizational tool. It goes beyond mere flowcharting. Graphitities cally depicts relationships between systems. Complex, detailed program aimed at software pros. \$250. Meta Software, 150 Cambridge Park Drive, Cambridge, MA 02140. NCP (Apr '88)

FamilyCare is a "yuppie" handbook to childhood diseases. The rule-based expert system gives advice based on symptoms. Ailments and diseases run the gamut from acne and appendicits to wheezing and yeast infections. Lacks graphics. Version 1.0. Requires 512K. \$99. Lundin Laboratories, 29451 Greenfield Road, Southfield, MI 48076. Mac II and MultiFinder friendly. NCP (Sept' 88)

FlowMaster charts your ad dollars in print, TV, billboard, and other mediums.

\$\$\$\$\$\$\$ Analyzes cost/benefit of a campaign in terms that even jaded Mad. Ave. execs will find innovative. Includes bar-chart and tabular output. Requires 512K+. \$495. Select Micro Systems, 40 Triangle Center, Yorktown Heights, NY 10598. NCP (Jan '88)

For the Record is a database specifically designed for legal, financial, and personal records. Allows password locking of screens containing sensitive personal data. Version 1.0 reviewed. Requires 512KE. \$49.95. Nolo Press, 950 Parker St., Berkeley, CA 94710. NCP (Feb '89)

FormSet: Business Forms Edition brings a wealth of business forms, such as \$\$\$ expense reports and profit/loss statements, into the electronic arena. Fields are automatically calculated. Can't be customized beyond adding logo. Version 1.0. Requires 512KE and two 800K floppy drives or hard disks. \$95. SoftView, 4820 Adhor Lane, Suite D, Camarillo, CA 93010. NCP (Jan '89)

GeoQuery puts your database on the map by accessing zip code information.

1511

Comes with maps of the U.S. Other atlases available. Version 1.0 reviewed. Requires 1 megabyte + and second disk drive. \$349. Odesta, 4084 Commercial Avenue, Northbrook, IL 60062. NCP (July '88)

Gulde allows you to "cross reference" from within a document using hypertext. You \$155% can set up words or sections of the document so that double-clicking brings up explanatory material, graphics, and other useful ities. word processing and formatting functions, however, are limited. \$135. OWL International, 14218 N.E. 21st St., Bellevue, WA 98007. NCP (Apr '87)

Inspiration's flowcharting tools let you free-associate ideas visually, then autotists matically dump the flowchart into a text outline. Version 1.0. Requires 512KE and an 800K drive or a hard-disk drive. \$149. Ceres Software, 9498 S.W. Barbur Blvd., Suite 103, Portland, OR 97219. NCP (Dec. 188)

Instant Expert is an excellent way to learn the mechanics of creating an expert system. The inference engine (that ultimately finds the answer) is visible. Lacks a true Mac interface. Version 1.0. \$49.95. Human Intellect Systems, 1670 S. Amphlett Blvd., Suite 326, San Mateo, CA 94402. NCP (Jan '88)

MacSMARTS can create small, stand-alone expert systems. Features hypertext connections to Paint, PICT, SYLK, and text files. Still a little buggy. Version 1.03. Requires 512K+. \$149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02138. NCP (Jan '88)

MBA Series is a set of 11 multiuser business applications that run under ACIUS'
4th Dimension. Well designed and useful. Requires 1 megabyte, second
disk drive, and 4th Dimension. \$189 per application, unlimited users.
Generation Four, 3232 San Mateo N.E. #199, Albuquerque, NM 87110.
NCP (Mar '89)

Microsoft Works is an integrated application that includes word processing, \$\$\$\$% database, spreadsheet, and telecommunications functions. The telecommunications module includes both background up- and downloading, \$295. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP (Oct '86) ★'86 Eddy

MORE is an incredibly powerful outline processor with gobs of great features:
instant charts, math capabilities, multiple windows, font and style control, templates, and more. Prints outlines in any of several standard

formats, even in color. Requires 512K+. \$395. Symantec, 117 Easy St., Mountain View, CA 94043. NCP (Jan '87) ★'86 Eddy

QuickDex keeps your phone numbers in an electronic Rolodex. The desk states accessory even plays the tone through the Mac's sound port. Version 1.4a. Requires 512KE; hard disk is recommended. \$60. Casady & Greene, P.O. Box 223779, Carmel, CA 93922. NCP (Jan '89)

STELLA for Business is a simulation tool used to model complex business systems. Requires that you master a discipline called "system dynamics." Requires 512K+. Mac II version available. \$350. High Performance Systems, 13 Dartmouth College Highway, Lyme, NH 03768. NCP (June '88)

SuperExpert is an expert system shell that induces rules from examples.

Rules become unwieldy when many criteria and examples are used.

Overpriced. Version 1.4 reviewed. Requires 512KE. \$199.95. Softsync, 162 Madision Avenue, New York, NY 10016. NCP (July
'88)

UTILITIES

AutoMac III is similar to Tempo II and Apple's MacroMaker but is generally easier to use and comes with excellent documentation and a powerful Macro Editor. Version 2.0 reviewed. Requires 512KE. \$79.95. Also distributed with Microsoft products (Word 3.02 and 4.0, File 2.0). Genesis Micro Software, P.O. Box 6236, 17124 N.E. Eighth Place, Bellevue, WA 98008. NCP (Feb '89)

AutoSave DA is insurance against system crashes. It saves your work automatitions, but not recommended for use with databases. \$49.95. Magic Software, 1706 Galvin Road S., Bellevue, NE 68005. NCP (Jan '88)

CalendarMaker creates monthly calendars in a variety of formats. Users can the incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Dec '86)

Capture saves any portion of a Macintosh screen to the Clipboard or as a PICT file.

\$\$\$\frac{1}{3}\$\$\$\$\$ Works in color on the Mac II. Requires \$12K+. MultiFinder friendly.

\$\$59.95. Mainstay, \$311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '88)

Colorizer adds pigments to the desktop and black-and-white applications. Also state colors PICT graphics. System resources include saving and printing color screens. A useful novelty that'll run its course as developers add color to apps. Requires Mac II. \$49.95. Palomar Software, P.O. Box 2635, Vista, CA 92083. NCP (Jan '88)

Copy II for the MacIntosh is a collection of powerful yet easy-to-use disk utilities.

\$\frac{1}{2}

DiskExpress optimizes hard-drive performance by reorganizing fragmented files.

\$\$\frac{1}{2}\frac{

DiskFinder searches disks for files as well as cataloging disks. Requires 512KE. \$49.95. Williams & Macias, South 3707 Godfrey Blvd., Spokane, WA 99204. NCP (Feb '89)

DiskFit is a utility for backing up and restoring hard disk files. Creates a "Smart-\$\$\frac{1}{2}\frac{1}{2}\text{Set}" of floppy disks so incremental back-ups only update files modified since the last back-up procedure. Backs up to floppies or another hard disk. Requires 512KE+, \$99.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043, NCP (June '87)

DiskQuick is an easy-to-use cataloging program. Criteria selection option for generating subcatalogs. Requires 512K+. \$49.95. Ideaforms, P.O. Box 1540, Fairfield, IA 52556. NCP (Apr '87)

Disk Ranger is a speedy cataloging program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. \$34.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar '86)

DiskTools Plus is a set of eight useful DAs and applications. Earlier version was sold as Battery Pak. The DA Disk Tools II is a Finder replacement. Also included are an RPN calculator, Phone Pad, and Calendar Manager. Requires 512K+. \$49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Mar '88)

DiskTop is a desk accessory Finder replacement of extraordinary power and ease of use. Comes with the useful LaserStatus DA and Widgets application.

The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, \$7; \$10 with new manual. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Aug '87)

Smart investors always buy utilities.

You've invested in a Macintosh* to bring out the best in what you do. Now enhance that investment with SuperMac's family of easy-to-use utilities. Programs that protect your work. And help you do more in less time.

Improve your portfolio with our Sentinel™data encryption software, SuperSpool™or SuperLaserSpool™ printing control software, and DiskFit™ backup and restore program. The analysts say they're blue chip. And so will you.

Don't let your printer regulate your business.

Why stop working just because you're printing? Let SuperLaserSpool and SuperSpool take control. So you can use your computer again seconds after you select "Print." Even if your



documents are long and complex. See if documents have printed, preview them, or zoom in to see part of a page up close. Or send several documents to the spooler and change the printing order later. Both products work faster under MultiFinder* than any other spoolers.

SuperSpool works with any ImageWriter.* And SuperLaserSpool is the only spooler that works with all Apple* printers. Plus, it's the only one compatible with PageMaker*3.0.

MacWeek said,"The speed at which SuperLaserSpool returns control of the Mac to the user is impressive, in some cases even astonishing."

Keep insider information where it belongs.

SENTINEL

Lock up your confidential information with Sentinel, a program that lets you convert any document on your disk into a secure code.

No one can open it without the password you define. Or a Cray* and about 50 years.

Documents and folders can be grouped together in convenient sets. Then choose one of three advanced encoding techniques, including DES, the U.S. government's official data encryption standard. Sentinel encrypts, locks and unlocks faster than any other program.

The critics at MacWorld said, "... Sentinel provides a simple, effective security tool that does exactly what it claims to do and does it well."

How to recover from a crash.

DiskFit copies files on your hard disk for safekeeping. If your disk crashes, DiskFit can completely restore them. Back up just



once, and DiskFit makes a complete record of files called a SmartSet. Then, DiskFit copies only new or modified files to the SmartSet, and deletes old files. You won't waste time copying files that haven't changed, or disk space storing old versions.

Create backups on floppies, tape, Bernoulli*cartridges or even other hard disks. Of whole volumes, documents, system or application files. And Network DiskFit™ backs up AppleShare* or TOPS* networks.
As MacUser said, "DiskFit is so easy

to use and so well designed that it may be the program that gets you to do regular backups on your hard disk-making it more than worth the price."



Add SuperMac's utilities to your Macintosh portfolio.

Put SuperMac's utilities on your buy list. To protect the investment you've made in your Macintosh system, and to do more work in less time.

You'll find our family of utility programs at authorized SuperMac dealers and leading software specialty stores.



485 Potrero Avenue Sunnyvale, CA 94086

Dubl-Click Calculator Construction Set lets users design personalized calculations with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr '86)

Eureka: The Solver is a free-form numerical equation solver. Standard trigonometric and logarithmic functions are available, as is treatment of imaginary and complex numbers. \$195. Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Mar '88)

Fastback for the MacIntosh is hard disk back-up software that is very quick, if not very efficient. Doesn't automatically exclude applications. Creates a separate catalog disk. \$99.95. Fifth Generation Systems, 1322 Bell Ave., Tustin, CA 92680. NCP (Apr '88)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner to state of the stat

Findswell is an indispensible utility that installs a new button in the Open Dialog box of virtually every Macintosh application. Press the button, type a search string, press Find, and Findswell searches for any files that match. Click Open or double-click to open the correct file. Requires 512K+. \$49.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95060. NCP (Nov '87) *'87 Eddy

1stAld Kit HFS recovers lost or damaged files from floppy or hard disks. An
15134 excellent manual-turned-textbook actually teaches the Hierarchical
File System. Requires 1 megabyte +. Version 2.2 reviewed. \$99.95.
1st Aid Software, 42 Radnor Road, Boston, MA 02135. NCP (June
188)

FlashBack is a utility to back up HFS hard disks onto floppies. A unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. \$59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Nov '86)

Font/DA Juggler Plus gives you unlimited access to almost any number of fonts, desk accessories, and sounds. Uses hierarchical menus. \$59.95. ALSoft, P.O. Box 927, Spring, TX 77383. NCP (May '88)

Glue adds a print-to-disk capability to many programs. ImageSaver installs as

\$1114 printer driver; Viewer allows copying and printing of Glue files. Handy
utility for desktop publishers. \$59.95. Solutions International, P.O. Box
989, Montpelier, VT 05602. NCP (Dec. 86)

Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding, \$89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk back-up utilities. Back up by tile/folder or last changes. Back-up specifications can be saved as templates. Good graphic interface. Reliable program, \$49.95, PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. NCP (Dec '86)

HFS Locator Plus is the essential HFS desk accessory. It can search for a file by same or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. \$39.95. PBI Software, 1163 Triton Drive, Foster City, CA 94404. NCP (Sept '86)

Icon-It1 lets you create icons to use as an alternative to menu commands. Comes with 47 icon templates or you can create your own. Version 1.0. \$79.95. Olduvai Software, 7520 Red Road, South Miami, FL 33143. NCP (Feb '88)

LabView is a graphical programming environment that creates "virtual instruments" to perform calculations, acquire laboratory data, and control instrumentation. Slow. Version 1.1 reviewed. \$1900. National Instruments, 12109 Technology Blvd., Austin, TX 78727-6204. NCP (July

LaserServe is a printer spooler for AppleTalk networks. After installation all operations are done via a desk accessory. Works with both MacServe and TOPS. Requires 512K+ and 800K drive or hard disk. \$95 per node. Infosphere, 4730 S.W. Macadam Ave., Portland, OR 97201. NCP (Feb '87)

Mac Disk Catalog II is a utility that will quickly organize a moderate-size disk library. Easy to use with powerful reporting and label-making features. \$49.95. New Canaan MicroCode, 136 Beech Road, New Canaan, CT 06840. NCP (Dec '85)

MacFlow is a design tool created for programmers. Traditional flowcharting symbols are linked together, and a symbol can be connected to a separate flowchart file. Now supports custom symbols. \$125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr '87)

MacInUse tracks time spent in applications and saves info as text files. Installs on say disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client records, etc. \$79. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan '87) ★'86 Eddy

MacLabeler lets users instantly index and print labels for all the disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, P.O. Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. \$170, SE and Plus; \$350, Mac II. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025, NCP

MacSafe is a data file security program that allows you to place multiple files into a
**safe," and then you can further protect them through two types of
encryption (including DES). Flexible and very easy to use. Allows for
installation on hard disk. \$149,95. Kent Marsh Ltd., 1200 Post Oak
Blvd., Houston, TX 77056. CP (Mar '87)

MacServe converts a Mac and a hard disk into a disk and print server. Uses the \$\$\$\$% AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. \$250. Requires 512+. Infosphere, 4730 S.W. Macadam, Portland, OR 97201. CP

MacTree displays your files in the form of a hierarchical tree. Good idea, poor performance. Can't view tree easily. Good search function. Requires 512K+. \$69.95. Software Research Technology, 22901 Mill Creek Drive, Laguna Hills, CA 92653. NCP (Apr '88)

MacZap is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure, and make back-up copies of most disks. \$60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan '86)

MasterJuggler is Font/DA Juggler with so many features added that they can't be stated here. A world-class utility. Not as elegant as Suitcase II but has more features. Version 1.0 reviewed. 512K. \$79.95. ALSoft, P.O. Box 927, Spring, TX 77383-0927. NCP (Mar '89)

Menu Fonts displays the names of fonts in the actual font instead of standard \$\$\$\$
Chicago. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with LockOut, a utility that gives password access to your Mac, and FastFormatter, a utility for formatting multiple blank disks. Requires 512K+. \$15. Beyond Software, 6069 E. Grant Road, Tucson, AZ 85712. NCP (July '87)

MockPackage + is a set of extremely powerful DAs. Includes a text editor, text
printer (supports LaserWriter), charter, terminal, and EZmenus. HFS compatible. \$35. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Mar '87)

myDlskLabeler is an excellent label maker. It can read directories and use large or small icons or anything desired. Comes with 54 precut labels. \$44.95; with color printing ability (on the ImageWriter II), \$54.95; with PostScript font capability (on the LaserWriter), \$64.95. Williams and Macias, P.O. Box 19206, Spokane, WA 99219, NCP (Aug '87)

*Noryptor is a simple, safe program that lets users password-protect their files.

The same program is used for encoding and decoding. This is one of the best products in its category. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

On Cue lets you switch applications without returning to the Finder. Under Multi\$\$\$\$%
Finder, active applications are listed on a pop-up menu. Can also launch directly to a specific document. Version 1.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. ICOM Simulations, 648 South Wheeling Road, Wheeling, IL 60090. NCP (Sept '88)

OmnlPage is a very good OCR program that can create editable text files out of scanned images. It works only with certain scanners and requires a lot of memory, so be sure you can meet its requirements before you buy.

Version 1.0 reviewed. 68020 and 4 megabytes required. \$695. Caere Corporation, 100 Cooper Court, Los Gatos, CA 95030. NCP (Mar '89)

PowerStation is an extremely easy-to-use, versatile and powerful Finder substitute. Loaded with powerful features. Comes with Pyrol \$59.95. Fifth Generation, 1322 Bell Ave., Tustin, CA 92680. NCP (Dec '87)

Printworks for the Mac is a comprehensive software-based dot-matrix printer control system. Optimizes printing from different applications, and is easy to use. Requires 512K+. \$75. SoftStyle, 7192 Kalanianaole Highway, Honolulu, HI 96825. NCP (Aug '87)

Programmer's On-line Companion puts an abridged version of Inside Macintosh in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Mac-ish interface makes the program confusing, somewhat difficult to use. \$34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (July '87)

Quick & Dirty Utilities, Volume One is a disk full of handy programs. Several desk

\$\$\$\$\frac{1}{3}\$\$\$\$\$\$\$\$\$\$\$ accessories include a menu bar clock and a terminal emulator. \$39.95.

Dreams of the Phoenix, P.O. Box 10273, Jacksonville, FL 32247. NCP

(Nov '85) ★'85 Eddy

Before you give your next presentation, press this button.

Turn Desktop Presentations Into Conference Room Power

Your Macintosh® is one of the best tools around for creating great presentation images. Now VideoShow® can take those images into the conference room where you'll really impress your audience with high-resolution presentations in up to 100,000 brilliant colors on screen. And it's as easy as pressing a button.

Create your images with your favorite graphics or presentation software like Microsoft® PowerPoint™, Aldus® Persuasion™, Symantec™ MORE II™, etc. Then

take your presentation diskette from your Macintosh into the conference room. Insert it into VideoShow and press the button.

and press the button.

VideoShow turns your images into exciting, boardroom-quality presentations with dynamic transition effects, all in brilliant full color. Even if you've created your images on a Mac® SE or Plus.

And your Macintosh can remain in your office while you're in the conference room. Just connect VideoShow to a color monitor or large-screen video projector. Insert your presentation disk, and press the button.

Easy On Your Budget

With three models, starting at \$1795, there's a VideoShow unit to fit every budget and presentation



VideoShow's wireless remote control puts you in complete command of your presentation.

need. And VideoShow can operate as the cornerstone of a full system for creating presentations in a variety of media.

Brilliant Slides, Too

When you need professional quality high-resolution slides, simply add Photo-Metric® SlideMaker® to turn your great images into great slides. At your desk. No guesswork. No service bureaus. No delays. No problems.

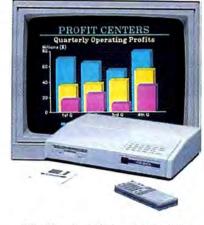
And Instant Overheads

VideoShow with Print-

Maker® software and a color printer, produces sharp,

brilliantly colored overhead transparencies and hardcopy handouts. Easily and instantly.

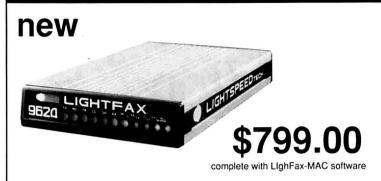
You have to see VideoShow to believe it. Call today 800-556-1234, ext. 234. In California, call 800-441-2345, ext. 234.



VideoShow is an electronic presentation unit for outstanding conference room presentations.

General Parametrics Corporation The leader in desktop presentation products

your MAC + LightFax 9624 FaxModem = the World at your fingertips



It's a state-of-the-art, external, high-speed fax, and a 2400 baud 100% Haves™ compatible modem. LightFax 9624 turns your Mac into a powerful world communication machine at a lower cost than a standard fax. Plus it offers sophisticated capabilities not found on standard fax machines, including document composition/editing, file storage, name card data management, scheduled sending (when the phone rates are cheaper), broadcasting (sending documents to multiple addresses), file queuing (sending multiple files), etc. LightFax 9624 has BACKGROUND OPERA-TION, that is you don't have to guit your application for your MAC to receive a fax. With optional LightSpeed 200 dpi scanner you can scan documents into your MAC, for fax transmission or for use with your favorite paint program. Use

LightFax 9624 also with your PC, with optional software. Finally click the mouse and your LightFax 9624 becomes a 2400 baud modem with Bell & CCIT standards for worldwide standards compatibility. To learn more about all the exciting capabilities of Light-Fax 9624 consult your nearest Apple dealer or call us for information.

another ribbon

Special Offer: FREE MOUSEPAD or a PhotoArt Disk with any order >60.00, a \$12.00 value

Over 100,000 sold since 1982



MacInker

Imagewriter I & II MacInker, complete with free bottle of ink, reservoir cover and ink meter/dispenser.

DATA SWITCHES



MS4-MAC8, 4 port 8 pin DIN-8 connectors MS4-MAC9, 4 port 9 pin connectors SCSI Switch 2 port	50.00
MS4-MAC9, 4 port 9 pin connectors	50.00
SCSI Switch 2 port	46.00
SCSI Switch 4 port	59.00
Cables	16.00

Order Toll Free 800-547-3303

in Oregon (503)626-2291- fax(503)643-5379

Immediate shipment - 30 days money back guarantee

Computer Friends, Inc.

14250 NW Science Park Dr. Portlánd OR 97229

MacInker™, the original, automatic ribbon re-inker. The Imagewriter MacInker (mod 234IM) re-inks Imagewriter I/II black & single color cartridges. The Universal MacInker also re-inks hundreds of different cartridge types (including the Imagewriter LQ) with suitable adaptors. Extra dark, dot matrix, lubricated ink yields a truly better than new print quality and extends print-head life. New feltless dispenser ensures precise ink metering. Number of re-inkings/cartridge is 60-100. With the Multicolor Adaptor (mod M422, \$40.00) MacInker can re-ink the multicolor Imagewriter II cartridges. We have a full range of optional accessories, inks & cartridges, indelible ink, heat transfer etc. Colors: red, green, blue, yellow, purple, brown, orange, silver, gold. Ask for free catalog. In 1982 we pioneered re-inking technology and are dedicated to its development.

Imagewriter I/II MacInker (mod 234IM)	42.00
Multicolor Adaptor (mod M422)	40.00
Heat Transfer Adaptor	30.00
Epson MacInker (mod 271EP)	42.00
Universal Cartridge MacInker	68.50
Imagewriter cartridges3.15/ea4-color.	10.00/ea
Heat Transfer cartridges	9.00/ea
Extra ink bottle3.00/eapint	18.50

Macintosh Disks 3.5" DS (pack of 10) ...15.00 Mouse Pad (sale).....5.00 Classic PhotoArt collection (5 disks)59.00

Moby Dick 120 wall disk holder39.95 Moby Dick 240 wall disk holder49.95



MODEMS



All our modems are 100% guaranteed Hayes™ compatible and have a 2 year warranty. Full front panel lights, auto answer,dial, repeat, call progress monitoring and speaker control. Superior signal to noise ratio and noise rejection. Includes software

1200 AT 300/1200 baud Mercury 2400 baud (also supports Europe V21, V22)239.00 Capricorn World Minimodem, 300/1200 baud, pocket size
Bell 103/212A & European CCIT V21,V22 standards....136.00 Cable Mac to Modem (specify Macintosh type)16.00 QuickLink™ Software (if purchased separately)......29.95

Quickeys lets you make full use of your keyboard. Assign any command (menu \$\$\$\$\$ choices, DAs, etc.) or series of text blocks and/or command to any key or key combination. Enormously powerful; necessary for Apple Extended Keyboard owners. Requires 512K+. \$99.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Jan '88) ★'87 Eddy

RamSnap is a RAM disk and disk cache in one easy-to-use package. Can store multiple configurations as files. Good product but a little pricey. \$30. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (June '87)

Read-It1 is the best consumer value in optical character recognition software.

Works with any scanner that saves images as a bit map, PICT or TIFF file.
Comes with type tables that can be customized. Version 1.1. \$395;
ThunderScan version, \$149.95. Olduvai Software, 7520 Red Road,
South Miami, FL 33143. NCP (Apr '88)

RoundUp searches your disk for a specified text string. Slow, awkward, poor performer. Does not work with Mac II or 68020 accelerators. Version 2.0E reviewed. Requires 512K. \$49.95. Virginia System Software Services, 5509 West Bay Court, Midlothian, VA 23112. NCP (Apr '89)

SentInel encrypts data files (or sets of files) using a super-secure DES or a superfast SuperCrypt algorithm. Provides high-level security if you can keep your passwords secret. Requires 512KE. \$295. SuperMac, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Apr '88)

Smart Alarms is the best reminder system for the Mac. Easy to use, versatile, and, state well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. \$49.95. Imagine Software, 19 Bolinas Road, Fairfax, CA 94930. NCP (Oct '86)

SoundWave is a useful sound recording and editing utility. Works with waveforms; able to change sampling rates. Previously known as SoundCap. \$199.95. Impulse, 6870 Shingle Creek Parkway, Minneapolis, MN 55430. NCP (Apr '88)

\$\$\$\$\$ for transferring documents via modem. Also joins and encrypts files. Version 1.5. Requires 512KE. Shareware fee, \$18. Raymond Lau, 100-04 70 Ave., Forest Hills, NY 11375-5133; also available on most electronic services. NCP (Dec '88)

Sultcase is a transparent program that automatically lets you use all your fonts

1111 and DAs. Foolproof and indispensible. Comes with Pyrol, the best screen

1112 saver. Requires 512K+. \$59.95. Fifth Generation, 1322 Bell Ave., Tus
1115 CA 92680. NCP (Nov. 187) + 187. Eddy

tin, CA 92680. NCP (Nov '87) * '87 Eddy

SuperLaserSpool is a LaserWriter spooler. Very fast because it does conversion

to PostScript in the background, but doesn't print a faithful rendition of PageMaker documents as a result. \$149.95 single user, \$395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (June '87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to eight on a 1-megabyte or larger machine). Switching between the programs is nearly instantaneous. Requires 512K+. \$19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (June '86)

Symantec Utilities for MacIntosh (or SUM) reduces worries about losing data. It ttts prevents, diagnoses, and if required, fixes many serious disk and file problems. Recovers lost files on crashed hard disks. Version 1.0. Requires 512KE. \$99.95. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Sept '88)

Tempo II is a powerful keyboard macro program that gives owners of extended keyboards their money's worth. Especially good for building sequential macros. Features include conditional branching and the ability to remember menu selections by name. Version 1.0. \$149.95. Affinity Microsystems, Ltd., 1050 Walnut St., Suite 425, Boulder, CO 80302. NCP (Dec '88)

TMON is the debugger for the Mac. This isn't open to question. TMON is simply the \$\$\$\$\$\$ best. Comes with the latest version of Darin Adler's Extended User Area. \$149. ICOM Simulations, 626 Wheeling Road, Wheeling, IL 60090. NCP Turbo Download is a desk accessory designed specifically to increase the speed \$\$\\\$\\\$\%\$ of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50 percent to over 300 percent at 2400 baud. \\$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301.

Twelve-C Financial Desk Accessory brings all the power and functionality of a \$\$\$\$ Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. \$49.95. Positive Works, 142 Cone Road, Ormond Beach, FL 32074. NCP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 186)

WorksPlus Command lets you build and define macros for all Works modules.

\$333
Predefined macros provide for an even tighter integration of the program's word-processing, spreadsheet, and database modules. Requires
I megabyte + . \$99.95. Lundeen & Associates, P.O. Box 30038, Oakland, CA 940604. NCP (May '88)

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error handling.

\$\$\$\$\$ Good for serious program development. Documentation is not as good as the program. \$150. Advanced AI Systems, P.O. Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar '87)

Acknowledge lets advanced programmers create customized applications that will accomplish many telecommunications tasks — from automatically picking up E-mail to communicating with VAXs. Version 1.0. Requires 512KE. \$495. SuperMac Technology, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jan '89)

Allegro Common LISP's development environment is a full EMACS style editor

\$\$\$\$\$\$\$ called FRED that implements most Common LISP editing and debugging functions. Version 1.2. Requires 1 megabyte and a hard drive, \$600. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Nov '88)

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. \$75 beginners, \$199 basic system, \$299 development system, \$499 commercial system. Manx Software Systems, P.O. Box 55, Shrewsbury, NJ 07701. NCP (May '86)

Basic Compiler is the long-awaited compiler for Microsoft BASIC. The inter-\$\$\$% face is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. \$195. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP (May '87)

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and stand-alone applications. Requires 1 megabyte + . \$995. ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108. NCP (Aug '87)

ExperLISP is a useful programming language for high-level programmers. The more you use it, the more you'll figure out about it. \$495. Requires 512K+. ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features threedimensional graphics using "bunnies" rather than the usual "turtles." Very speedy, smooth program. Comes with an excellent manual. \$149.95. ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. \$495. ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108. NCP (Mar '87)

LPA MacProlog is a much improved program that includes incremental and opti-#### mizing compilers, a graphics environment package, and C and Pascal submodules. Version 2.0. Requires 1 megabyte + . \$495. Programming Logic Systems, 31 Crescent Drive, Milford, CT 06460. NCP (Feb '88)

Mac C is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. \$425. Consulair, 140 Campo Drive, Portola Valley, CA 94025. NCP ★'85 Eddy

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing stand-alone applications for the Mac. \$195. ALSoft, P.O. Box 927, Spring, TX 77383. NCP (Feb. '86)

MacForth Plus is an excellent implementation of the popular Forth programming language. New, reduced price; \$199. Creative Solutions, 4701 Randolph Road, Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create stand-alone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$99.95. Requires 512K+. Palo Alto Shipping, P.O. Box 7430, Menlo Park, CA 94026. NCP (Apr '86)

MacIntosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an editor (Edit), an assembler, a linker, an executive, and a resource compiler. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

MacIntosh Pascal is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. \$125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (June '86)

MacScheme + Toolsmith is a Mac version of Scheme, a LISP dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get Toolsmith. Requires 1 megabyte +. \$395. Semantic Microsystems, 4470 S.W. Hall, Beaverton, OR 97005. NCP (Aug '87)

Microsoft BASIC was the Mac's first programming language. This interpreter (it's 1515 not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers, there are lots of programs available. \$99. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP ★'85 Eddy

MIDIBasic is a library of simple, but highly useful routines for writing MIDI software.

Good stuff, Sketchy documentation. Works with both Microsoft and ZBasic. Requires 512K+ plus BASIC. \$49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug '87)

Object Logo is an object-oriented programming language with access to the Toolbox.

\$\$\frac{1}{3}\$\$ Good product, but can't produce stand-alone applications. Requires 512K+.

\$79.95. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Aug'87)

Personal Prolog is an inexpensive and well-documented program. Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac Interface are excellent. \$64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar '87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has extensive debugging facilities, but you'll need a separate Toolbox disk with 58 additional predicates. Drawback: No true editing or printing facilities. \$99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar '87)

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well-thought-out features, it will make any programmer's life much easier. It is not a word processor, however. \$65. Paragon Concepts, 4954 Sun Valley Road, Del Mar, CA 92014. NCP (Mar '86)

THINK's Lightspeed C features rapid turnaround time for development and test

15134 ing of programs by the use of an integrated compiler, linker, and editor.

Source-level debugger steps through your code line by line to examine
the values of variables. Version 3.0. Requires 2 megabytes RAM. \$175.

Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Jan '89)

THINK's Lightspeed Pascal is a fast, powerful development system for Pascal \$\$\$\$\$ programming. Fully integrated Mac-like environment. Requires 512K+. \$125. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Feb '87)

TML Data Base Toolkit is an ISAM-type database that provides fast and efficient

administration of large data files in applications developed with TML
compiler. Supports multiple open index files. \$89.95. TML Systems,
4241 Bay Meadows Road, Jacksonville, FL 32217. NCP (Dec '86)

TML Source Code Library shows how to write programs that use custom definition to times, speech, serial drivers, split bars, and other topics. Provided on three 400K diskettes. Requires TML Pascal. \$79.95. TML Systems, 4241 Bay Meadows Road, Jacksonville, FL 32217. NCP (Dec '86)

Visual Interactive Programming is a unique visual programming system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. \$149.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '87)

ZBasic is a fast, interactive compiler capable of creating stand-alone applications that take advantage of Mac's unique features and abilities. Includes Edit, RMaker and MacInTalk. Requires 512K+. \$89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec '86)

EDUCATION

Alphabet Blocks teaches prereaders the letters and sounds of the alphabet. The tight digitized voice of an on-screen elf is clear and pleasant. Very intuitive. Requires 1 megabyte +. \$59.95. Bright Star Technology, 14450 N.E. 29th Place, Bellevue, WA 98007. NCP (May '88)

American Discovery is an interactive United States geography game that teaches states, capitals, and, in a roundabout manner, postal codes. Version 2.0 reviewed. Requires 512K+, \$59.95. Great Wave Software, 5353 Scotts Valley Drive. Scotts Valley. CA 95066. NCP (May '88)

Business Simulator is a training tool in a simulation game. Make decisions that manage the company through several stages over 25 years. Decisions become more difficult over time. Requires I megabyte +, two disk drives (one must be 800K). May be run from a hard disk. \$69.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Dec 187)

Course Bullder creates stand-alone educational applications. An easy-to-learn
\$\$\frac{1}{2}\frac{1

KidsTime is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech, and one is a nice introduction to musical notes. \$49.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Oct '86) *86 Eddy

LearnWord 3.0 is a three-part series of cassette tape/diskette modules that \$\$\$\frac{1}{2}\$\$ explain the intricacies of Word 3.0. They do the job, but remind you why cutting classes was more fun. \$49.95 per module. Personal Training Systems, P.O. Box 54240, San Jose, CA 95154. (Apr '88)

LXR-Test generates tests from a database of questions. Makes it easy to modify and scramble test questions. Flexible output. Requires Mac 512KE+, two 800K drives, or a hard-disk drive. \$199 or \$399, depending on features. Logic eXtension Resources, 9651 Business Center Drive, Rancho Cucamonga, CA 91730. NCP (May '88)

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. \$49.95. Palantir Software, 12777 Jones Road, Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. \$49.95. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. CP

Mavis Beacon Teaches Typing! has more features than a Selectric. Lots of diagnostics concerning typos. Incomplete docs. Version 1.1. Requires 1 megabyte. \$49.95. Software Toolworks, 1 Toolworks Plaza, 13557 Ventura Blvd., Sherman Oaks, CA 91423, CP (Nov '88)

On Becoming a Desktop Publisher is a video training tape based largely on the
\$\$\$\$\$ syndicated television program, "The Computer show." Good primer on
the fundamentals of DTP products. Will eventually become dated. Requires Beta or VHS VCR. \$49.95. Ocean Communications, 1641 North
First St., Suite 160, San Jose, CA 95112. (Sept '88)

Reader Rabbit teaches 4-to-8-year olds how to read in four elegant games that \$3\$\$\$ play and build off of each other. Requires 512KE+ and an 800K drive. Mac II and MultiFinder hostile. Version 2.0 reviewed. \$59.95. The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555. CP (June '88)

Sensel Physics is a capable, intelligent, well-designed study aid. Covers Vectors to Thermodynamics to The Nature of Light. Animated experiments let you try out concepts. Requires 512K+. \$99.95. Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. CP (Jan '88)

Type! is a typing tutorial that is both practical and flashy. It allows users to interrupt and move easily between functions; however, use of the Return key or space bar are assumed but never explained. Version 1.0. Requires 512K. \$29.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903-2101. NCP (Nov '88)

Typing Instructor Encore recognizes that it's being used on a word processor.

While it is easy to control, there are some strange bugs in the program. Requires 512K. \$49.95. INDIVIDUAL Software, 125 Shoreway Road, Suite 3000, San Carlos, CA 94070-2704. NCP (Nov '88)

Typing Tutor IV consistently tests your use of all keys, including seldom-used ones. It's hard to maintain user's attention span, as the testing material is unimaginative. Requires 512K. \$49.95. Simon & Schuster, One Gulf and Western Plaza, New York, NY 10023. NCP (Nov '88)

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. \$39.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (Apr '86)



GET MORE BYTES FROM YOUR APPLE

Before today's high-powered Macintosh software can "devour" all your memory, let Micron put more bytes in your Apple.

Our Macintosh Memory Expansion Kits are designed to support today's most advanced programs — and to maximize the speed and performance of your Mac. Each kit is fully compatible with

all Macintosh software, and features fast, low-power CMOS SIMM modules for an additional 1 to 8

megabytes of RAM*.

So you can still run all your favorite programs while expanding your memory to execute the newest generation of software, like MultiFinder,

HyperCard and Excel.

And like all Micron products, our Macintosh Memory Expansion Kits are manufactured and tested under the industry's most stringent quality control standards. Plus they're backed by our "Hands on Excellence" service program and a 2-year limited warranty.

> So contact your local Micron dealer or call us at 1-800-642-7661.

And put more bytes in your Apple. Micron. It's a name worth remembering.

* SIMM kits available for the Macintosh Plus, SE and II.

Macintosh, MultiFinder and HyperCard are trademarks of Apple Computer, Inc. Excel is a registered trademark of Microsoft Corporation.



2805 E. COLUMBIA ROAD, BOISE, IDAHO 83706 (208) 386-3900

Please circle 81 on reader service card.

The Ancient Art of War gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. \$44.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP (Apr '86)

Apache Strike would have been an excellent arcade game in the late '70s. Now, it's passe. Navigate a helicopter to destroy ever-increasing numbers of enemy aircraft and tanks. Mac II hostile. Requires 512K+. \$49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (July '88)

Balance of Power is the world's first computer peace game. This simulation
\$\$\$\$\$\$\$ allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. \$49.95. Mindscape, 3444 Dundee Road, Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen and paper game of
\$\$\$\$\$\$ Battleship. Requires strategy on several levels. Makes excellent use of
Mac sound and graphics. Fun, casual game, especially when the Mac is
one of the players. Requires 512K+. \$30. Timeline, P.O. Box 60, Ypsilanti, MI 48197. NCP (June '87)

Beyond Dark Castle brings back Prince Duncan in an encore performance to run,
jump, and beat his way to victory. But really, just more of the same.
Requires 512KE. \$49.95, Silicon Beach Software, P.O. Box 261430,
San Diego, CA 92126. NCP (Aug '88)

Beyond Zork is yet another installment in the famous Zork series of text adventures. Find the fabled Coconut of Quendor to restore failing magic in this expert-level game. On-screen mapping and the Mac's window environment are utilized. \$49.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (Apr '88)

The Chessmaster 2000 is a masterful chess program that will appeal to both stiss novice and master. You can view the board from 2-D or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. \$39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (July '87)

Chuck Yeager's Advanced Flight Trainer doesn't quite have the right stuff to hold interest for long. Simplistic controls. Lacks features found in versions for other computers. Verison 1.0. Requires 512KE and two 800K disk drives. \$49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Nov '88)

Crystal Quest combines all the good elements of nearly every video game ever made. Move a piece around to gobble up points and crystals. Shoot the nasties and get through the goal before they get you. Excellent sound effects. In color on the Mac II. Requires 512K, \$49.95. Casady and Greene, P.O. Box 223779, Carmel, CA 93922. NCP (Apr '88)

Deja Vu: A Nightmare Comes True is a graphic adventure that breaks new \$1113 ground. Innovative use of the Mac interface in a truly playable and exciting game. A great introduction to graphic adventure games. \$49.95.

Mindscape, 3444 Dundee Road, Northbrook, IL 60062. CP (Jan '86)

*85 Eddy

Dinner at Eight is a useful recipe-filing system that includes a collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes. \$49.95. Rubicon, 2111 Dickson Drive, Austin, TX 78704. NCP (Jan '86)

Down Hill Racer is an action game with three skier personalities, four courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nicel). \$49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sept '87)

Falcon simulates an F-16 fighter jet with gut-tightening, sweat-making realism.

\$\$1\$\$\fomation\$ Go against MiGs and dodge SAMs scenarios. Requires 1 megabyte +.

\$49.95. Spectrum HoloByte, 2061 Challenger Drive, Alameda, CA
94501. NCP (May '88)

Ferrarl Grand Prix is an exciting race car simulation game. Mastering it takes quite

\$\$\$\$\$ a bit of time and effort. Startup course and four other courses are built into
the program. You can also design your own courses and backgrounds.
Requires 512K+. \$59.95. Bullseye Software, P.O. Drawer 7900, Incline
Village, NV 89450. CP (July '87)

Fool's Errand is an outstanding collection of 80 puzzles woven around a mythical theme of an evil priestess and the search for wisdom. Requires 512K+. \$49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. NCP (July '88)

Gato puts players in command of an American submarine in World War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." \$49.95. Spectrum HoloByte, 2061 Challenger Drive, Alameda, CA 94501. CP (Nov '85)

GO is the Chinese equivalent of chess. Players plonk markers on a grid to gain territory and outwit an opponent or the computer. Requires 512K+. Mac II hostile; MultiFinder friendly. Version 1.0 reviewed. \$49.95. Infinity

Software, 1144 65th St., Studio C, Emeryville, CA 94608. NCP (June '88)

Handwriting Analyst produces a personality profile based on answers to ques-\$\$\$\$\frac{1}{2}\$\$ tions about one's handwriting. It's simple and the results will amaze and astound. \$49.95. Ciasa, 2017 Cedar St., Berkeley, CA 94709. NCP (Apr. 188)

Hollywood Hijinx substitutes a modern Hollywood estate for the famous Underground Empire, but otherwise represents a return to Zork gameplay and feel. There's even a maze to navigate. Simplistic, but good. \$39.95. Infocom, 15 Cambridge Park Drive, Cambridge, MA 02140. NCP (June '87)

Klondike is a version of solitaire that uses video game-like scoring to create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Version 3.3. Shareware: \$10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec '87)

Leather Goddesses of Phobos is another in the long line of witty and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3-D comic and a scratch 'n' sniff card. It has three levels of play: tame, suggestive and lewd. \$19.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (Feb '87)

MacGolf is a dynamic simulation of real golf. Players have a choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May '86)

Mac Pro Football is a terrific sports simulation that gives you the chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. \$49.95. Avalon Hill, 4517 Harford Road, Baltimore, MD 21214. CP (Mar '87)

MacRacquetball uses digitized videos and sounds of professional players for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (Oct '87)

MoonMist is an introductory level text adventure game. This is a typical haunted tenglish castle story, not quite up to Infocom's best. It has four versions, so it's good for more than one play. \$39.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (May '87)

MSFL: Pro League Football is a professional football league simulation that encourages people to play people, not the machine. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No baserWriter support. Requires 1 megabyte + .\$49. MicroSports, P.O. Box 15799, Chattanooga, TN 37415. NCP (Apr '88)

NewGammon is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high-speed mode is included. \$39.95. Newsoft, P.O. Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional football. Comes on two disks, one with program and System, the other with statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. \$99.95. XOR Corp., 5421 Opportunity Court. Minnetonka, MN 55343. NCP (June '87)

Ogre is a strategy tank game played on a hexagon grid. The ogre is an intelligent cybertank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. \$30. Origin Systems, 136 Harvey Road, Building B, Londonderry, NH 03053. CP (Nov 187)

Patton vs. Rommel is a traditional-style strategic war game. It covers events in Normandy in 1944. While complex, it's well-designed and very playable. \$39.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (Apr. '87)

Pinball Construction Set lets users create their own pinball games, as elaborate or as easy as desired. Uses MacPaint for backgrounds and has lifelike sounds (on 512K+ Macs). \$39.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (Jan '86)

PT-109 by any other name is Gato, a WWII submarine simulator also put out by Spectrum. Three-year-old technology with a minor face lift. Version 1.0. Requires 512K. Mac II friendly; MultiFinder hostile. \$49.95. Spectrum HoloByte, 2061 Challenger Drive, Alameda, CA 94501. NCP (Sept '88)

Puppy Love is a combined game and teaching tool. As you teach your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. \$29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar '87)

Quarterstaff is a fantasy adventure game of the typical "good versus evil" variety.

Ability to use characters in other adventures gives this game a lot of potential for development. Version 1.2. Requires 1 megabyte +.

Just say CRATE



Crate Technology welcomes seven new rives! We offer a great line of external disk rives known as MacCrate ranging from OMB to our performance driven 160MB.

Our line of internal disk drives known as nnerCrate now ranges from 20MB to 00MB for the Mac SE, and 40MB to our ew upgraded high performance 600MB or the Mac II.

TapeCrate, our high speed quality ackup system now protects not only 60MB out also 155MB of your valuable informaion in less than 12 minutes.

cCrate, InnerCrate and TapeCrate are registered trademarks Crate Technology, Inc.

Inner CRATE

Mac II	40MB	28ms	\$585.00
Mac II	60MB	28ms	\$655.00
Mac II	80MB	27ms	\$849.00
Mac II	100MB	27ms	\$949.00
Mac II	160MB	17ms	\$1525.00
Mac II	300MB	16ms	\$2785.00
Mac II	600MB	16ms	\$3845.00
Mac SE	30MB	28ms	\$560.00
Mac SE	40MB	28ms	\$585.00
Mac SE	50MB	28ms	\$730.00
Mac SE	80MB	27ms	\$849.00
Mac SE	100MB	27ms	\$949.00
60MB	tape back	cup	\$739.00
	tape bacl		\$1049.00

Mac CR ATE

111111	W	
20MB	65ms	\$545.00
40MB	28ms	\$740.00
60MB	28ms	\$839.00
80MB	27ms	\$949.00
100MB	27ms	\$1049.00
160MB	17ms	\$1625.00

NATIONWIDE IN CALIFORNIA 800-323-9994 800-543-5808



6850 Vineland Avenue, Building M North Hollywood, CA 91605

Please circle 40 on reader service card.

\$49.95. Simulated Environment Systems, 800 South Pacific Coast Highway, Redondo Beach, CA 90277. NCP (Mar '88)

Seven Cities of Gold is an educational program masquerading as an adventure game and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. \$39.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (June '87)

Shadowgate is an icon-based graphic adventure. You, as the seed of prophecy,
tttp:// must save the world from the evil warlock. Far surpasses all others with
great animated graphics, sound, and adventure. \$49.95. Mindscape,
3444 Dundee Road, Northbrook, IL 60062. CP (Dec '87)

Shanghal challenges players to clear a board of all 144 tiles by matching pairs of \$\$\$\$\$\$ mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. \$44.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Nov '86) ★'86 Eddy

Snake-Bar lets you guide a snake (or train or semi) through a maze, picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. \$15 (shareware). Georges Malmound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec '87)

Solitaire Royale is a collection of eight solitaire card games. The Tour mode cycles through each game. Tournament deals the same hand for several players. \$34.95. Published by Spectrum Holobyte, 2061 Challenger Drive, Alameda CA 94501. CP (May '88)

Space Quest is a three-dimensional, animated adventure in which you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. \$49.95. Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614. CP (Sept '87)

Star Fleet I: The War Begins! is a space opera of the Star Trek variety. Rise through the ranks from ensign to admiral in this serialized adventure. Requires 512K+. \$55. Interstel, P.O. Box 57825, Webster, TX 77598. NCP (May '88)

Strategic Conquest Plus challenges you to discover an unexplored world and \$\$\$\$\frac{1}{2}\$\$\$ conquer it by manufacturing and deploying armies, ships, and planes. A two-disk game that doesn't support an external drive. Requires 512K+. \$59.95. PBI Software, 1111 Triton Drive, Foster City, CA 94404. CP (Feb '88)

Sub Battle Simulator is a superior naval combat game. Sixty different missions \$\$\$\$\$ and the ability to link missions keep it from ever getting boring. Requires 512K+. \$39.95. Epyx, P.O. Box 8020, Redwood City, CA 94063. NCP

Trust & Betrayal: The Legacy of Siboot requires negotiating with six artificial \$\$\$\$\% personalities in a struggle for power — not surprising considering that it comes from the maker of Balance of Power. Uses hieroglyphics to communicate in a fantasy world. Requires 512K+. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. CP (Mar '88)

Ultima III allows up to four characters cooperate to explore the vast wilderness of \$5545. Sosaria. \$59.95. Origin Systems, 340 Harvey Road, Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely haunted mansion.

\$\$\$\$\$\$\$ Graphic interface makes it easy to play. Animation and sound add to the thrill. \$49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sept '86) ★'86 Eddy

Winter Games lets up to eight players compete against each other in Olympic events including figure skating, bob sledding, biathlon, and ski-jumping. Excellent animation, good graphics, good theme music. \$39.95. Epyx, 600 Galveston Drive, P.O. Box 8020, Redwood City, CA 94063. CP (Mar '86)

Wizardry is an outstanding dungeon exploration adventure pitting a party of up \$\$\$\$\$\$ to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. \$59.95. Sir-Tech, Charlestown-Ogdensburg Mall, P.O. Box 245, Ogdensburg, NY 13669. CP

Your Personal Poet creates personalized greeting cards on the Mac. Comes complete with four greeting cards and matching envelopes. Requires 512K+. \$29.95. Computer Poet, 775 E. Greg St., Sparks, NV 89431. NCP (June '87)

MUSIC

Alchemy loads and edits digitally sampled sounds from most commercial samplers. Works with 512K, but it eats up memory quickly. Requires MIDI or RS-422 Interface, and sampler. \$495. Blank Software, 1477 Folsom St., San Francisco, CA 94103. CP (Oct '88)

Apple MIDI Interface is a simple Musical Instrument Digital Interface with a 1

\$\$\$
megahertz clock rate. Has only one MIDI input and one output. Works
with all Macs; adapter required for 128K and 512K. \$99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (June '88)

ConcertWare + is an enhanced version of ConcertWare. Has different instru-#### ments and can use any four of a set of eight at any point in a piece. Supports Adobe Sonata music font. \$69.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Dec '87) ★'85 Eddy

ConcertWare + MIDI is a composition and transcription program that can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles eight tracks of eight voices each. Requires 512K. Version 4.0. \$149.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Dec '87)

Deluxe Music Construction Set lets you enter up to 48 voices on eight staves, and play the music through the Mac's internal speaker and/or via MIDI. Requires 512K+. Mac II and MultiFinder hostile. Version 2.0 reviewed. \$99.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (June '88)

Graphic Notes Music Publisher is a very good page-layout program for music notation, with MIDI support. Comes with special musical notation keypad. Version 2.0 reviewed. Requires 1 megabyte and second disk drive. \$595 (including Presto keypad). Graphic Notes Inc., 200 Seventh Ave., Santa Cruz, CA 95062. NCP (Apr '89)

Jam Factory is a program for performing complex manipulations on MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. \$189. Intelligent Computer Music Systems, P.O. Box 8748, Albany, NY 12208. CP (Oct '87)

Jam Session is a music program for those who think MIDI refers to the length of skirts. Without any skill, you can "Jam" with rock, jazz, rap, or country tunes. A sort of "Sing Along With Mitch" for the computer set. Requires 512K+. \$49.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP (July '88)

Listen is an educational tool for ear training. It has both a piano keyboard and a \$3\$\$ guitar fretboard for the student to input notes, and offers a wide range of exercises. \$99. Resonate, P.O. Box 996, Menlo Park, CA 94026. (Jan '87)

M is a music composition and creation program that works with MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. \$219. Intelligent Computer Music Systems, P.O. Box 8748, Albany, NY 12208. CP (Oct '87)

Master Tracks Pro is a full-featured, second-generation MIDI sequencer that adheres to the Mac interface very well. It's the first program to have graphic-controller editing. Needs patch chasing for professional use, but It's still a rock-solid program. \$350. Passport Designs, 625 Miramontes St., #103, Half Moon Bay, CA 94019. CP (Dec '87)

MIDIBasic is a simple, but highly useful routine for writing MIDI software. Good \$\$\$\$\$ stuff. Sketchy documentation. Works with both Microsoft and ZBasic. Requires 512K+ plus Basic. \$49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug '87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," Music Mouse gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. \$59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May '87)

Performer is the definitive MIDI sequencer, and is priced accordingly. Includes 1311 looping, SMPTE synching, 32 simultaneous Ins and Outs, unlimited over-dubbing, and compatibility with Professional Composer for transription. Version 2.2. Requires MIDI interface and 512K+. \$395. Mark of the Unicom, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Practica Musica uses an interactive game and practice approach to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords, and melodies. Requires 512K+. \$125. ARS Nova Software, P.O. Box 40629, Santa Barbara, CA 93140. NCP (Nov '87)

Professional Composer produces performance-quality sheet music using Ado-1334 be's Sonata font. Scores can be created from scratch or imported from Performer (and can be exported to Performer for MIDI playback). Requires 512K+. \$495. Mark of the Unicom, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Softsynth creates sounds for additive synthesis samplers. Downloading from Mac \$\$\$\$ to sampler is time consuming. Requires 512K, sampler, MIDI interface. \$295. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Sound Designer set the standard for editing samples on lower-cost samplers, but it still lacks real-time high-fidelity playback. Requires 512K, sampler, MIDI interface. Emax, E II, 2000/2002, DSS-1, S900,\$495; all others,

YOURS FREE

WITH YOUR SUBSCRIPTION!



NO KIDDING: WE GUARANTEE IT!

At MacUser, we are READER-DRIVEN. That means we are dedicated to helping you find the best products to do the jobs you need done, increase the performance of your Mac, acquire new computing skills and prepare for what's ahead for you and your Mac.

exact x and y coordinates of your cursor...list out resources...paste on a

And they're all yours FREE when you say "YES!" to MacUser!

new background.

We Guarantee It:

1. Savings Guarantee. We guarantee you savings of up to 50% OFF MacUser's cover price. 2. Free Gift Guarantee.

We guarantee you a FREE MacUser HyperDisk with your paid subscription!

3. Money-Back Guarantee.

If MacUser fails to meet your information needs, you can cancel your subscription at any time and receive a full refund on all unmailed issues. No questions asked.

When it comes to your Mac—we don't kid around.

Subscribe to MacUser today.

You'll save up to 50% OFF the cover price—and get the MacUser HyperDisk—FREE with your paid subscription.

One year (12 issues) only \$19.97—SAVE 44%!

Two years (24 issues) only \$35.40—**SAVE 50%!**

Savings based on annual single-copy price of \$35.40. Regular subscription price is \$27.

FOR FAST SERVICE, CALL TOLL-FREE 1-800-525-0643!

\$395. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Studio Session consists of two programs, an Editor, and a Player, that produce

\$\$\$\$½

music with six voices of digitized sound. Excellent program plus good
manual make this a good buy. \$89.95. Bogas Productions, P.O. Box
6699, Terra Lina, CA 94903-0699. NCP (Aug '87) ★'86 Eddy

Turbosynth creates sounds for a digital sampler using modular synthesis tech15551 niques. Good harmonic spectral inverter. Lacks an easy method of multisampling. Requires 1 megabyte, sampler, MIDI interface. \$349. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct
88)

UpBeat turns the Macintosh into a front panel for a highly complex and versatile drum machine. Input patterns with mouse, MIDI keyboard, or drum machine. Requires 512K. \$150. Intelligent Music, P.O. Box 8748, Albany, NY 12208. CP (May '88)

HARDWARE & ACCESSORIES

AppleCD SC reads CD-ROM optical discs that contain up to 656 megabytes of data. Also plays audio compact discs. Reads High Sierra format, an industry standard for CD-ROM. Requires SCSI port. \$1,295. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Dec '88)

Apple Scanner is not the state of the art, but is adequate for scanner neophytes.

\$\$\$\fomation{\frac{1}{2}}\$ The 4-bit (16 gray levels) scanner comes with AppleScan software and HyperScan, written by Bill Atkinson. Requires System 6.0; hard disk for full-page work; SCSI connection cables. \$1,799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Feb '89)

AST TurboScan is a 300 dpi scanner with sophisticated graphics software. Scans at resolutions from 72 to 300 dpi. Super-Scan software offers halftone, line art, and mixed modes. "Virtual memory processing" lets you scan images too large to fit in RAM. \$1,899. Requires 512K+. SuperScan software included. AST Research, 2121 Alton Ave., Irvine, CA 92714. NCP (Nov '87)

Classic Professional Graphics Display is a low-cost color monitor for the Mac II.

\$334

Good value, but has an IBM-look about it. Green tint is annoying. Requires Apple video card. \$549. Classic Components, 1490 Artesia Blvd.,
Gardena, CA 90247 (June '88)

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk with a \$\$\$\$\$ unity interleave and average access time of 18 milliseconds. Holds 140 megabytes. Help, file transfer, and tape back-up commands built-in. Hard Disk Partition is a useful DA. Comes with a 6-foot SCSI cable. \$2,995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (July '87)

ColorVue SE is a video processor board for the Mac SE that lets you display 16 colors on an exemal RGB monitor. Slows up performance. \$695. Orchid Technology, 45365 Northport Loop West, Fremont, CA 94538. (Oct '88)

DASCH is an external RAM disk available in ½-, 1-, and 2-megabyte sizes. Connects to a serial port. Speeds up operations 200 to 300 percent. Can be used as a printer buffer. Works with all Macs. 512K, \$395; 1M, \$450; 2M, \$545. Western Automation Laboratories, P.O. Box 3438, Boulder, CO 80307. (Feb '87)

DATA-PAK is a 45-megabyte removable Winchester hard disk. Great for backing \$\$\\$\$\$ up your main hard disk or transporting large amounts of data between office and home. Requires SCSI connector and System 4.1/5.5 or later. Drive, \$1,799.95; cartridges, \$149.95 each or tri-pack for \$419.95. MASS MICRO Systems, Inc., 550 Del Rey Ave., Sunnyvale, CA 94086-3258. (Jan '89)

DaynaFile hooks up to a SCSI drive to read MS-DOS disks in the Mac environment.

Use Mac applications to manipulate data created with an IBM PC. Comes in both 5.25 and 3.5 inch formats. \$595 for single floppy. Dayna Communications, 50 S. Main St., Fifth Floor, Salt Lake City, UT 84144. (Jan '88)

*87 Eddy

DEST PC Scan 2000 is an 8-bit scanner that saves images in up to 256 levels of \$\$\$\$\frac{1}{2}\$ gray. Can be configured for IBM PCs. Requires 1 megabyte. Scanner, \$1,495; Publish Pac software, \$595; OCR text processor card, \$995. DEST Corporation, 1201 Cadillac Court, Milpitas, CA 95035. NCP (Dec '88)

FAXstf is an early entrant in the fax modern race. Adequate, but slower than most fax machines, and using it as a normal modern requires changing plugs. Requires 1 megabyte of memory, and a hard disk is strongly recommended. \$695. STF Technologies, P.O. Box 247, Higginsville, MO 64037. NCP (Feb '89)

Fellx is an optical-tracking graphics tablet that replaces a mouse. Precision mode gives pixel-by-pixel control. Doesn't collect dirt like a mouse does. The 6-inch square device is designed primarily for right-handed people. Works with Mac Plus. \$149. Lightgate, 6202 Christie Ave., Emeryville, CA 94608. (Sept '88)

FX-20 is a good 20-megabyte external hard drive. Good utility software. Reliable and reasonably quiet. Sits next to the Mac, has a large, oddly-shaped case. Requires SCSI port, 512K+, new ROM. \$1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb '87)

Grappler LQ hooks Macs up to parallel laser and 24-pin letter-quality printers. A cable, driver software, and special fonts combine to make dozens of once-unfriendly printers now compatible with the Mac. Requires 1 megabyte and a parallel printer. \$149. Orange Micro, 1400 North Lakeview Ave., Anaheim, CA 92807. (Nov '88)

Hard Disk 20SC is Apple's 20-megabyte SCSI hard disk. Reliable, fairly noisy unit.

\$\$\$\$
Good utility software, but no back-up yet. Requires cable and terminator (\$80). Requires SCSI port, 512K+, new ROM. \$1,299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb '87)

Hewlett-Packard ColorPro Graphics Plotter is an eight-pen desktop plotter that requires third-party software to drive it. Fonts are limited to an optional Graphics Enhancement Cartridge that requires some BASIC programming. \$1,295. Hewlett-Packard, 16399 W. Bernardo Drive, San Diego, CA 92127. (Feb '88)

HyperDlaler provides an interface between a phone and your Mac so you can
1514 "dial" a number using one of the Rolodex-type programs, like SideKick,
Focal Point or QuickDex. Hooks up between the Mac's sound port and a
telephone handset. Requires 128K. MultiFinder friendly. \$39.95. DataDesk International, 7651 Haskell Ave., Van Nuys, CA 91406. (Sept
188)

ImageMaker shoots 35mm color slides direct from the Mac. Supports most presentation software. Uses patterns to represent colors. Not fully compatible with the Mac II. Requires 512K+. \$4,995. MacDriver software, \$149. Presentation Technologies, 743 North Pastoria Ave., Sunnyvale, CA 94086. (Feb '88)

ImageWriter LQ outputs letter-quality text and graphics at 216 dpi. To do so, it reduces 72-dpi screen fonts to a third of their actual size. Takes a lot of memory. Printer Driver version 2.0. Requires 1 megabyte and large font sizes. \$1,400. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, (Jan '89)

IS/ONE tablet with Penworks software lets you use a corded or cordless pen or mouse and a high-res tablet for precise graphics input. Minor bugs with some applications and DAs. Keystroke macros can be launched from the tablet. Minimal documentation. Requires 1 megabyte +. \$595 to \$1145. Kurta, 4610 S. 35th St., Phoenix, AZ 85040. (Jan 188)

Jasmine Direct Drive 50 is a very quiet 1:1 interleave 50-megabyte hard drive and one of the fastest SCSI drives around. A small fan keeps it cool, but it's still quiet. \$1,159. Jasmine Technologies, 555 De Haro St., San Francisco, CA 94107. (Mar '88) * 87 Eddy

LaserWriter IINT is Apple's mid-priced PostScript laser printer. It's faster than the LaserWriter Plus, with blacker blacks. Gray scale is less even than that of Plus. Requires 512K+. \$4,599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

Laser Writer IINTX is Apple's top-of-the-line PostScript laser printer. 68020 chip

makes it very speedy; expandable to 12 megabytes; SCSI hard disk can
be attached for fonts. Requires 512K+. \$6,599. Apple Computer,
20525 Mariani Ave., Cupertino, CA 95014. (May '88)

LaserWriter IISC is Apples's low-end QuickDraw laser printer. Can be upgraded
to IINT or IINTX; reasonably fast. Requires 1 megabyte + . \$2,799.
Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May

Mac II Workstation is the best, most versatile computer workstation around. This
\$3\$\$ freestanding or wall-mountable heavy steel unit includes a high shelf for
your Mac II, and a moveable, damped arm for your monitor. The unit
comes in a variety of configurations. \$540. Ergotron, 3450 Yankee Drive,
Suite 100, Eagan, MN 55121. (Mar '89)

Mac-101 is a keyboard alternative that has a good feel to it. Has a keypad, 15

\$1315

function keys, and more. The 101-Keys desk accessory lets you define
macros. Comes in an ADB version for the SE and II. Requires 512K+.
\$169.95. DataDesk International, 7650 Haskell Ave., Van Nuys, CA
91406. Software NCP (Apr '88)

Mac-105 Keyboard is a good alternative to Apple's Extended Keyboard, with \$15% a larger Return key, higher and more sculpted key tops, and a lower overall weight. Requires Mac SE or Mac II. \$179; with QuicKeys, \$199. Cutting Edge, P.O. Box 1259, Evanston, WY 82930. (Feb '89)

MacADIOS II is a hardware and software interface for laboratory instruments.

\$333

Standard configuration samples up to 142 kilohertz. Documentation is sketchy. \$1,290 for Macintosh II-ready data acquisition card; \$600 for MacADIOS II software interface. GW Instruments, 264 Msgr. O'Brien Highway, Cambridge, MA 02141. (July '88)

MacBottom HD-21 is a very low (about 2 inches high), external 20-megabyte hard
\$\$\$\$\$\$ drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including HFS Backup. Requires SCSI port, 512K+, new ROM. \$1,195.
Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd.,
Tampa, FL 33634. (Feb '87) ★'86 Eddy

MacLite

Imagine having
a 2 pound Mac
everywhere
you go ...

You'd like to do some writing while you're on vacation in Hawaii; take your name, address and phone number file on a business trip; take a spreadsheet to a meeting down the hallway. You'd like to throw your Mac in your briefcase along with everything else.

Well, now you can - almost. MacLite isn't a Mac. It's a completely different kind of computer, with its own built-in word processor, spreadsheet, clock, calendar, diary, alarms, and operating system.

What's special about MacLite is that it can exchange data files with a Mac - and it weighs less than two pounds.

Word processing If your word processor can handle MacWrite or plain text files, you can create files on MacLite and transfer them to your Mac, and vice versa.

Spreadsheets MacLite can transmit and receive files in the WKS format, so you can download Excel files from your Mac, change them on MacLite, and upload them back to your Mac.

HyperCard stacks MacLite includes HC Organiser™ - a HyperCard stack for your Mac that keeps track of names, addresses, phone numbers and things to do. Data from HC Organiser stacks can be transferred to and from MacLite.

Memory MacLite can be expanded to over 1.5Mb of memory. There's 32K built in, and three memory modules of up to 512K can be inserted under the keyboard. (A 128K memory module is included with MacLite, for a total of 160K.)

You can even put

Virtually all the memory is available for your data files, because MacLite's built-in software is all in ROM.

Batteries MacLite runs on 4 AA disposable batteries for up to 20 hours, and your data is safe for months. You won't even lose data when you change batteries.

Keyboard MacLite has a silent keyboard, so you can use it anywhere - in the classroom, meetings, libraries. Display
The display is a
supertwist LCD with eight
lines by 106 characters. There's
even a page map to show you
the "shape" of a complete page.

Peripherals MacLite is only 8.25"x11.5"x.875", but it's a complete computer, and can be used with a pocket modem, a serial or parallel printer.

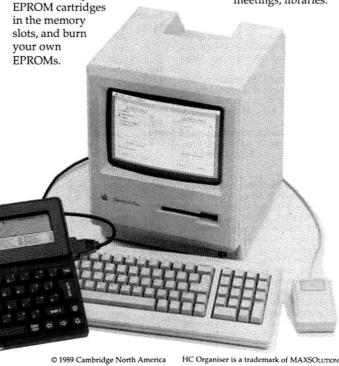
Operating system MacLite's multi-tasking operating system allows you to have several documents open simultaneously, and to switch from one to another with just a few keystrokes. When you return to a document - even after switching off - you'll find it exactly as you left it, without booting, loading, opening, saving, closing or quitting.

MacLite includes Cambridge Z88 portable computer, additional 128K RAM (for total of 160K), serial-to-serial cable, data file transfer software, and HC Organiser. \$849 (plus \$15 shipping; 7% sales tax in IL)

To order Call 800-366-0088

Take MacLite everywhere you go for the next 21 days. If it doesn't change your life, send it back and owe us nothing. In fact, we'll even let you keep HC Organiser (retail value \$49.95) as our way of saying thanks for trying MacLite.

Cambridge North America, 615 Academy Drive, Northbrook, IL 60062



... try the next best thing for 21 days

MacBottom HD-70 Hard Dlak is an excellent drive that comes with some very \$355% good software, including HFS Backup. Requires SCSI port. \$1,995; 1,200-baud Hayes-compatible modem, \$200 extra. Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Building A, Tampa, FL 33634. NCP (Apr '89)

Mac Crate 60MB Hard Disk puts a Seagate drive in a platinum casing. At \$14 per \$\$\$\$ megabyte, it's a good consumer value. Also comes in 20-, 40-, and 80megabyte models. Requires SCSI port. \$839. Crate Technology, 6850 Vineland Ave., Bldg. M, North Hollywood, CA 91605. (Nov '88)

MacIntizer is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. \$599. GTCO Corp., 7125 Riverwood Drive, Columbia, MD 21046.

MacLarger is a 12-inch external monitor for 512K machines on up to the SE.

Displays the same number of pixels as an internal monitor, only one-third larger. Bigger and brighter, but less crisp than the Mac's own screen.

\$449. Power R, 1606 Dexter Ave. North, Seattle, WA 98109. (Apr '88)

MacPacq transforms the Macintosh into a digital oscilloscope, waveform generator, and chart recorder. PacqManager is software expandable via external routines in Turbo Pascal and other languages. Version 1.03 reviewed. \$995. Biopac Systems, 42 Aero Camino, Goleta CA 93117. NCP (July '88)

MacRecorder is an easy-to-use sound digitizer. Includes software to turn sounds

1113 into HyperCard buttons, mix sounds, add special effects, and convert

112 sound formats. Stereo recording possible on a Mac II. Requires 512K+.

112 strallon Computing, 2150 Kittredge St., Berkeley, CA 94704.

112 NCP (June '88)

MacSnap Plus 2 is a 2 megabyte memory upgrade for the Mac Plus. The board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. \$729. Dove Computer, 1200 N. 23rd St., Wilmington, NC 28405. (June '87)

MacTable is an elegant Danish worktable that holds a Mac and printer with room \$\$\$\$\\\$\$ to spare. The 30-inch deep by 60-inch wide table is made of particleboard and must be assembled. Cabinet is optional. Table, \$289; cabinet, \$139. ScanCoFurn, P.O. Box 3217, Redmond, WA 98073-3217. (Mar '88)

MacTablet is a stylus-driven graphics tablet. Users can easily sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. \$495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan '86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that allows a full range of swiveling and tilting. Very strong, this well-made unit is also very easy to use. \$99.95. Ergotron, P.O. Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for input. Capable of
\$155
extremely fine results and special effects. Easy to use and well- documented. \$349.95. Koala, 269 Mount Hermon Road, Scotts Valley, CA
95066.

Maglc Digitizer is a hardware digitizer that works with video cameras. With Laser\$\$\$\$\$\$ Magic software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with Magic software, \$399.95; LaserMagic software, \$49.95. New Image Technology, 10300 Greenbelt Road,
Seabrook, MD 20706. NCP (May '87)

Microtek MSF-300C is a 300-dpi flatbed scanner. Really fast when used with \$\$\$\footnote{1}\$ optional MS-SCSI/C adapter. Comes with Versa-Scan Plus software (NCP) to scan and manipulate image. Saves images in a number of formats including TIFF and MacPaint. \$1,895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec '87)

Migent Pocket Modem is a 300/1200 baud portable modem about the size of a 3-x-5 index card. Comes bundled with MacTerm 2.0, Borland's telecom DA. Manual is confusing, and tech support is minimal. \$259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov '87)

Mouse Mover is a mouse pad-type surface that snaps onto the bottom of the state, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. \$19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311. ** 85 Eddy

Moustrak is a fabric-covered foam mousing pad. It will increase the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. \$10. Moustrak, 3047 St. Helena Highway, Saint Helena, CA 94574.

NetModem is a 1200-baud modem that can be accessed by all users on an AppleTalk network. The modem's display lights and the dial tone are simulated on-screen. Requires 512K+. \$599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919. (Feb '88)

One Plus One is a user-installable memory upgrade for a Mac Plus. Adds 1

\$\$\$\$\text{\fixed}\$ megabyte of RAM to the 1 megabyte already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. \$375. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug '87)

Personal LaserPrinter is a non-PostScript laser printer at a great price. Clumsy workarounds required in some applications. Printing can be slow. Requires 1 megabyte +. \$1,999. Fonts Plus, \$299. General Computer, 580 Winter St., Waltham, MA 02154. (Apr '88)

Personal Writer PW15 S is a tablet-based handwriting recognition system that also allows graphics and macros. Number of misread characters is too high for general word processing. Requires 1 megabyte +. \$895. Personal Writer, 1801 Avenue of the Stars, Los Angeles, CA 90067. Software NCP (Mar '88)

PhoneNET is an AppleTalk-compatible network. Network can be up to 3,000 feet

1111 in length. In-place, unused phone cabling can be used for network, and
can be combined with AppleTalk on the same network. \$59.95 per node.
Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec '86)

1111 ** ST Eddy

ProPoint replaces the mouse with an ADB trackball. Works better on the SE than it does on the Mac II. Lefties will find the button positions uncomfortable. Requires SE or Mac II. \$139.95. Abaton, 48431 Milmount Drive, Fremont, CA 94538. (Oct '88)

QMS Colorscript 100 is the first color PostScript printer that uses a four-color thermal wax transfer technology. Works on AppleTalk. Excellent typographic capability, Currently supports only a handful of applications. Requires 1 megabyte. \$21,995. QMS, 1 Magnum Pass, Mobile, AL 36618 (Oct '88)

QMS-PS 810 is an eight-page-per-minute, 300-dpi PostScript laser printer that competes with the LaserWiter IINT. 2 megabytes of RAM is standard; upgradable to 3 megabytes. Emulates HP LaserJet, 7475 (HPGL), and Diablo 630. \$5,495. Laser Connection, 7852 Schillinger Park West, Mobile, AL 36608 (July '88)

QuickShare adds a SCSI port to an IBM PC for easy connectivity with a Mac. Can use an IBM's hard disk to run Mac applications. Requires SCSI port. Mac II and MultIFinder friendly, Version 1.24 reviewed. \$465. Compatible Systems, P.O. Drawer 17220, Boulder, Co 80308. (June '88)

Radius Accelerator 25 can make your Mac SE run 50 percent faster than a Mac II.

11 The add-in accelerator card has a Motorola 68020 CPU that runs at 25 megahertz, and an optional 25 megahertz 68881 math coprocessor.

11,695; \$2,195 with optional 25-megahertz 68891. Radius, 404 East Plumeria Drive, San Jose, CA 95134. (Oct '88)

SpeedCard is an accelerator board for the Macintosh SE that more than doubles the speed of most applications. The board uses the 68000 chip found in the SE and an optional floating point 68881 chip for number crunching. Requires Macintosh SE. \$399; \$699 with coprocessor. SuperMac Technology, 295 North Bernardo Ave., Mountain View, CA 94043. (Nov '88)

SuperRam 2 and SuperRam 4 are 2- and 4-megabyte RAM upgrades. Should be tast dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-megabyte memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-megabyte memory modules. Not compatible with most big screens. \$499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct '87)

Tektronix 4693D Color Printer is a 300 dpi bit-mapped color printer. Colors look \$333 mooth and rich. Uses bit-mapped screen fonts; most type has noticeable jaggles. Requires Mac II with color monitor. Recommended 8-megabyte configuration, \$11,490. Tektronix, P.O. Box 500, Beaverton, OR 97077. (Oct '88)

ThunderScan replaces the ribbon cartridge in an ImageWriter, which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. \$249. Thunderware, 21 Orinda Way, Orinda, CA 94563. ★'85 Eddy

TimeWand is a bar-code reader with a built-in time/date stamping clock. Can be used with TimeWand Manager software, a database that's extensive though difficult to use. Poor docs, but good support. Requires 1 megabyte +. TimeWand 2K version, \$198; TimeWand Manager, \$489. Videx, 1105 N.E. Circle Blvd., Corvallis, OR 97330-4285. (Dec '87)

Turbo Mouse ADB makes an excellent mouse replacement, even if you're not a \$\$\$\$\$ trackball fan. If you're seeking absolute control, you can buy the optional cdev that enables you to specify custom tracking and double-click speeds. \$169.95; cdev \$15 direct order only. Kensington Microware Ltd., 251 Park Ave. South, New York, NY 10010. NCP (Feb '89)

TV Producer is an add-in card that overlays Mac graphics and text onto a video signal. Software is clumsy to use. Requires Mac II, Apple video card, and video souce. \$599. Computer Friends, 14250 N.W. Science Park Drive, Portland, OR 97229. Software NCP (May '88)

V-series Smartmodem 9600 is the fastest modem you can get for the Mac. To \$\$\$\$\frac{1}{2}\$\$ achieve high speeds, you'll need a special cable and software that supports the format. Requires 512KE, Mac-to-modem cable, and communications software. \$1,299. Hayes Microcomputer Products, 705 Westech Drive, Norcross, GA 30092. (Jan '89)

writeMove is the smallest, lightest Mac printer around. It's an ink-jet unit that can produce resolutions up to 192 dpi. It can run off rechargeable batteries or AC and weighs just 3 pounds. It comes with a good selection of Bitstream fonts. Printing quality varies widely depending on the paper and ink used. Printer Driver version 1.0. Requires 1 megabyte and hard disk. \$699. GCC Technologies, 580 Winter St., Cambridge, MA 02154. (Apr '89)

A New Kind of Connectivity and more . . .

Read and Write MS-DOS Files on Your Macintosh

Increase Disk Capacity by 50% to 300%



inside California 1- 408-370-2866



Rapport \$295 Drive 2.4 \$495 1 Year Warranty Free Shipping

Cash, Money Order or Cashier's Check

(California residents add 7% sales tax) VISA, MC, AmEx Mail to:



271 E. Hacienda Blvd. Campbell, CA 95008 Until now, to have your Macintosh easily and inexpensively sharing data with an IBM -compatible computer was like trying to communicate with aliens—the cost was high and the results were less than promised.

A New Kind of Connectivity

Rapport from Kennect Technology is a new compact connectivity solution for MS-DOS to Macintosh communication. With Rapport installed in the Macintosh external drive port, you have connectivity options previously thought impossible. Just insert your MS-DOS disk into the Macintosh internal drive and read, analyze and graph all your files directly, without cables and complicated protocols.

Because the leading Macintosh and MS-DOS applications can read and share one another's documents, you can use the unique features of Rapport to share data in ways never before possible.

50% More Disk Capacity

What's more, if you use Apple's 800k External disk drive on your Macintosh, Rapport can increase your storage capacity from a marginal 800k to a spacious 1.2 megabytes, a phenomenal 50% volume increase.

And More . . .

But that's just part of the story, Kennect Technology's new Drive 2.4 adds a unique dimension to floppy disk technology, with the capability to read, write and format to all current IBM & Apple® 3.5" standards. In addition, Kennect Technology's new, Very High Density formats furnish 1.2 megabyte of user space on standard media and 2.4 megabytes on the High Density diskettes.

Macrotroph and Apple are registered restemarks of Apple Computer Io. MS-DOS is a registered trademark of Microsoft Corp. 1984 is a registered trademark of International Business Machines Corporation

Please circle 167 on reader service card.

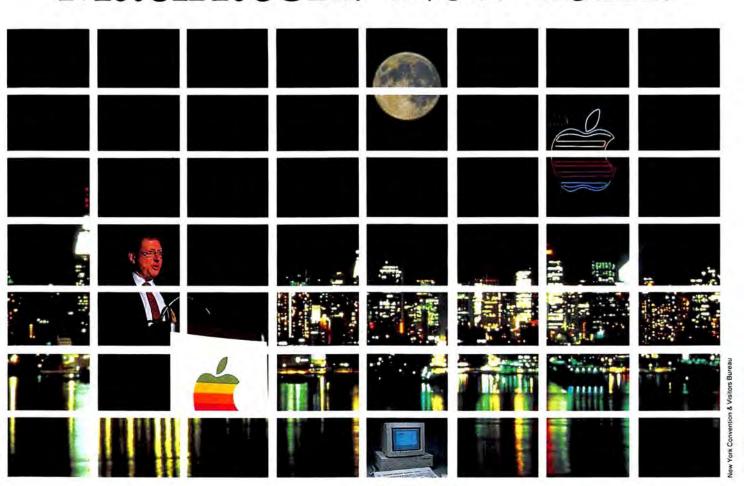
OUR HEAVY METAL ISSUE IS COMING IN MAY.

On April 17th, 32 Eddy statues will be given away at our Annual Editor's Choice Awards in New York. Read all about it in our special May issue. For the year's best Macintosh products, it's a very heavy honor.

MacUser



Macintosh. New York.





April 17-19, 1989 Jacob K. Javits Convention Center New York, NY Co-sponsor: MacUser Magazine Finally. A world-class Macintosh event in the one place where it has always belonged.

Come and be a part of the Macintosh conference and expo for corporate, business, and professional users — in the nation's largest and most important Macintosh market.

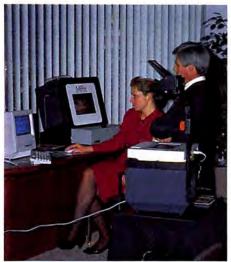
April 17-19, 1989. The Jacob K. Javits Convention Center. Featuring the largest Macintosh product expo ever to hit New York. A conference program offering more than 70 different high-level presentations, roundtables, and half-day executive seminars. And a conference faculty led by some of the greatest names in the Macintosh industry.

Come see history in the making. Come see what happens when America's greatest city hosts an event for America's greatest computer.

Call 1-800-262-3378 right now for tickets and information.

For Three Days in April, the Power Can Be Yours.

... Well, it's about time.













Just a sampling of what you can expect at the Macintosh Business Conference & Exposition:

- Exhibits displaying all the latest products from the Macintosh community's leading developers, including (of course) Apple Computer itself.
- A full, three-day conference schedule designed to answer your questions and help you make the most of your Macs.
- Half-day executive seminars offered in conjunction with Electronic Directions, Inc., and Forhan & Wakefield, two leading corporate training firms.
- Announcement of the winners of the Apple Professional Exchange's first annual nationwide Call for Papers — and presentation of the winning papers.
- "Learning laboratories" sponsored by MacUser, MacWeek, and other leading players in the Macintosh community. PLUS: Formal announcement of MacUser's prestigious Eddy Award winners.

Don't wait. Call 1-800-262-3378 now, or send in the coupon at right.

☐ I don't want to miss this substantial early registra	s chanc ition sa	e to atte	end a Sign n	e up at the ticket pri		
☐ I'm very interested. Plea						
☐ I'm especially interested Seminars. Tell me more		r \$295	Halt-l	Day and \$495 Full-Da	y Executiv	e
☐ Send me information ab		ibiting	at the	show.		
Name						
Title						
Company						
Address						
City/State				Zip		
Daytime phone	_	_	_			
☐ Exhibits Only	\$30	\$10		Check enclosed		
☐ Conference & Exhibits	\$95	\$75		Credit card MC	☐ Visa	☐ Ame
Card No.						
Signature						
Cardholder Name						
Amex billing address						
Mail to MBC&E-NY, c/o Cam One form per individual. Ph						2173.

MacUserville

279-282

HARDWARE	279-282
BAR CODE	279
COMPUTER SYSTEMS	279
DATA ACQUISITION	
DISK DRIVES	279
DISKETTES	280
ENGINEERING	280
GENERAL	280
INSURANCE	280
MEMORY UPGRADES	280-281
NETWORKING	282
PERIPHERALS	
PRINTERS	
SECURITY	
SOFTWARE	282-288
ACCOUNTING	282
BAR CODE	
BUSINESS	
DATA BASE	
DESKTOP PUBLISHING	
EDUCATIONAL	283
ENGINEERING	283-284
ENTERTAINMENT/GAMES	
FONTS	284-285
GRAPHICS	285
HEALTH	285
LANGUAGE TOOLS	286
MUSIC/MIDI	
PUBLIC DOMAIN	286
RELIGION	287
SCIENTIFIC	287
SHAREWARE	287
STACKWARE	287
STATISTICS	288
TAXES	

HARDWARE

MISCELLANEOUS	288-290
ACCESSORIES	288-289
BUSINESS OPPORTUNITIES	289
COMPUTER INSURANCE	289
DATA CONVERSION SERVICES	289
DESKTOP PUBLISHING SERVICES.	289-290
LABELS	290
MAILING LISTS	290
SUPPLIES	

ADVERTISING RATES AND INFORMATION

MacUser Marketplace is a special economical section , for product and service listings.

Advertisements are grouped by category and sold by column inches. Second color option available.

Standard Directory Listings are also available for a minimum of 3 issues at \$345.00 per issue (\$1,035.00 total).

For additional information call 212-503-5115.

CLASSIFIED ADVERTISING STAFF

One Park Avenue, New York, NY 10016 (212) 503-5115 or (800) 825-4ADS

Group Advertising Director Sales Manager
Kathryn J. Cumberlander Ron Kost
Group Sales Manager Advertising Coordinator
Daniel L. Rosensweig Wanda D. Brown
Production Director Anne R. Brockinton Manager
Sr. Production Coordinator
Bessi Dion
Sales Manager
Advertising Support
Manager
Monica Dixon

ACCOUNT MANAGERS

DENNIS M. LEAVEY (212) 503-5111 CA (ZIPS 93000 & UP). LA. MN, IL, CANADA, OH, KS, IA, KY, TN, CO, AK, AL, AR, MS, NB, NM, ND, IN, GA, OK, SD

MARY JO NASH (212) 503-5140 CT, MA, ME, NH, NY, RI, ID, MT, MD, DC, DE, HI, OR, SC, VA, WV, PA, WY, CA (ZIPS 92999 & DOWN)

WES WALTON (212) 503-5136 MI. VT. WA, NC, BC, NJ, FL, AZ, UT, TX, MO, NV, WI

HARDWARE

BAR CODE

BAR CODE & MAGNETIC STRIPE READERS FOR MACINTOSH PLUS, SE & II

Connects on keyboard or ADB Requires no additional program or port Does not affect keyboard or mouse Industrial quality, heavy-duty units Also available

Magnetic encoder Code 39 Bar Code Printing Program Portable Bar Code Reader

TPS Electronics 4047 Transport Street Palo Alto, CA 94303 415-856-6833 Telex: (Graphnet) 371 9097

FAX: 415-856-3843

CIRCLE 208 ON READER SERVICE CARD

COMPUTER SYSTEMS



COMPUTER SYSTEMS



* Macintosh II * Apple Laser Writer NT

Macintosh SE

Call Toll-Free

Next Day Delivery . Anywhere in U.S.

And Many More!

Also Available:

* IBM PC, XT, AT

* PS/2 Models 50, 60, 80

* Compag Portable III,

* Compag Deskpro 386

* HP LaserJet Series II

Serving Corporations Nationwide 'Convention and Meeting Specialists'

800-727-3685

CIRCLE 209 ON READER SERVICE CARD

Lisa/Mac XL U

NEW!! Accelerator Cards/Up to 4Mb RAM Larger & Faster Hard Drives/800k DS Drive Lisa / Mac XL Systems With MacWorks™ Plus

Call our Toll Free Hotline for Latest Product Info. at 800.782.7823



Orders & Info: 800-323-1751 215-574-0357 Fax Orders:

718-746-1071

Dafax+14 North Dr., Malba NY 11357

CIRCLE 210 ON READER SERVICE CARD

COMPUTER SYSTEMS

DISCOUNT MACINTOSH Macintosh Plus..... Macintosh SE 2 800k drive......\$2295 Macintosh SE 30mb internal.....\$2695 Macintosh SE 40mb internal.....\$2895 Macintosh SE/30 40mb internal....Call Macintosh II 40mb internal......\$3995 Macintosh II 60mb internal......\$4150 Macintosh IIX 80mb internal.....\$5695 Apple keyboard for SE or II......\$100 Apple extended keyboard......\$185 Apple 13" color monitor......\$750 Mac II 8 bit video card.....\$495 Imagewriter II w/cable.....\$450 Imagewriter LQ w/cable.....\$995 Apple Laserwriter II NT.....\$3695 General Computer P.L.P. Plus....\$1595

KIWI COMPUTERS P.O. BOX 67381 Los Angeles, CA 90067

(213) 553-4507 Ion-Fri 8A.M.-4.30P.M. P.S.T. Mac II prices don't include monitor, video card, keybrd. Ground or air shipping charges extra. Call for rates Foreign orders welcome. We ship to most countries. California residents add 6.5% sales tax. All items new. 90 days warranty on Apple products. Prices subject to change without notice. All sales final. Apple and Macintosh trademarks of Apple Computer.

CIRCLE 212 ON READER SERVICE CARD

DATA ACQUISITION

MACPACQ

Use your Mac as a digital oscilloscope & chart recorder. A complete data acquisition & control system. 8 channel A/D, B digital I/O, 64K RAM. Optically isolated, line or nicad powered. Runs remote or connected to Mac. Great software interface provides for powerful and flexible system. \$1195 complete.

Biopac Systems 5960 Mandarin Dr. Suite D5 Goleta, CA 93117 (805)967-6615

> MacUser Marketplace

Second Color Option Available

DISK DRIVES

External for Mac+, SE & II:-AppleCrate/Seagate 20 Meg \$499 AppleCrate/Seagate 62 Meg \$749

Internal for MacSE & II:-

46 Meg with Universal Kit ... \$599 31 Meg with Universal Kit ... \$499 100 Meg with Universal Kit . \$999

Other Products:

System Saver for: .. Mac+\$79,SE\$59 Anchor 1200 Modem w/ cable \$99

(School Purchase Orders Welcome.)

Circle Reader Service Card for a Catalog. Notes: 1. Prices subject to change without notice. 2. Shipping & Handling \$4 per \$100 order by UPS in continental USA. Estra for other places.

For Defective merchandise, write within 15 days wit the problem for Return Authorization, Refund or replacement at our option.

COMPUTERS PLUS COMPANY Phone: 602-955-1404 FAX: 602-840-3767

CIRCLE 213 ON READER SERVICE CARI

To place your ad call (212) 503-5115 or (800) 825-4ADS

DISKETTES



ENGINEERING

CIRCLE 214 ON READER SERVICE CARD

MacII488 · NuBus IEEE board for MacI MacSCS1488 · SCSI/IEEE controller Mac488B · Serial/IEEE controller MacSerial488 • IEEE plotter interface MacDA488 · IEEE desk accessory MacDriver488 • IEEE language driver

Call or send for your FREE Technical Guide

216) 439-4091



CIRCLE 215 ON READER SERVICE CARD

INSURANCE

INSURE YOUR COMPUTER

Safeware provides full replacement of hardware, media and purchased software. As little as \$39 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat. 9 to 5) SAFEWARE, THE INSURANCE AGENCY INC

2929 N. High Street, P.O. Box 02211 Columbus, OH 43202

(800)848-3469 (NAT) or (614)262-0559 (OH)

> To place your ad Call (212) 503-5115 or (800) 825-4ADS

GENERAL

Macintosh Service Parts / Systems

Service parts & systems for the entire Apple line bought and sold. Send for a free catalog. Call for a quote on your system.

Logic boards / Power supplies

Custom chips / CRTs / Disk drives / Systems & more

Pre-Owned Electronics, Inc. 30 Clematis Ave, Waltham, MA 02154 Voice: (617) 891-6851/Fax: (617) 891-3556

CIRCLE 216 ON READER SERVICE CARD

■ We BUY Mac's & Mac Stuff!!

We Buy, Sell, & Horsetrade Popular Computers!!

Mac Parts Call

Shreve Systems

Everex 20 meg. \$495. Used Mac's-----CALL

2421 Malcolm Street Shreveport, La. 71108

visa/m.c. O.K. 318-635-1121 Fax 318-865-2006

MEMORY UPGRADES



Haven't you waited long enough?

Upgrade your Mac Plus SE or II with 1 megabyte SIMMs modules. Low-profile and DIP mounted SIMMs available in 120ns and faster. Call for current price. We are the lowest

MINUWINE MUUDE 1-800-356-2892

CIRCLE 218 ON READER SERVICE CARD

Macintosh System Enhancements/New Macintosh Systems New Mac Systems

RAM/ROM Upgrades

128K to 512K 128K to 512Ke 128K to MacPlus 128K to 2MB Plus 512K to MacPlus 512Ke to MacPlus SCSI Interface

Used Mac Systems

5 889

\$1149 \$1900

512Ke

MacPlus Mac SE

Same Day turn-Around on Mac Upgrades and Computer Repairs



Mac SE wkybo

LaserWinter NTX

Hardware Acc.

800K Drive 12 2400 Modem

Seikosha Printer

Repl Mouse

Logic Boards Power Supplies

Repairs Parts

MacII wkybd

ImageWhter II

Simmons Consulting 6417 Market St. Upper Darby, Pa. 19082 (215) 352-6883 Ext. 20

CIRCLE 219 ON READER SERVICE CARD

UPGRADES

MEMORY

SIMM MEMORY MODULES:



FOR MACINTOSH™ PLUS, SE & II'S UPGRADE KITS FOR: 1, 2, 4, 8, MEG MEMORY CHIPS-ALL SPEEDS

> 1 MEG & 256K MODULES IN STOCK FOR IMMEDIATE DELIVERY

10291 EAST GRAND RIVER BRIGHTON, MI 48116 1(313)229 9303 FAX 1(313)229 5893

CIRCLE 220 ON BEADER SERVICE CARD

MAC MEMORY

One megabyte SIMM modules in stock for your Mac Plus, SE, or Mac II. Immediate delivery. Fully graranteed



408-973-8559 TRONIX Cupertino, CA 95014

CIRCLE 221 ON READER SERVICE CARD



MAC+ SE MAC II FAST 100 ns. EASY TO INSTALL KITS EASY TO INSTALL KITS FAST ONE DAY SHIPPING

1 800 331-1322

CIRCLE 222 ON READER SERVICE CARD

MEMORY UPGRADES

Category continued on next page...

280 M A C U S E R A P R I L 1 9 8 9

MEMORY UPGRADES

A SIMM IS A TERRIBLE THING TO \

Computer Care Inc. has introduced a new line of cost effective memory upgrades for Macintosh computers. SOFTSTEP allows you to upgrade by using standard 256K SIMMs.

SOFTSTEP I & II are socketed SIMMs with onboard memory that accept the factory installed 256K SIMMs to increase the machine's memory.

SOFTSTEP III, IV & V are SIMM modules that allow you to build 512K & 1 Meg SIMMs for the Macintosh using 256K SIMMs.

No machine modifications are required when using any of our products. 1 year warranty on all parts. Made in USA. Call for free information. VISA / MC accepted.

- SIMMS 1 MEG SOJ
- 1 MEG DIPS

256K SIMMS

78 Maple Street Roslyn Heights, NY 11577 1 (800) 542-7466

Upgrade to 2.5, 4, 5 or 8

megabytes with low-power, surface-mounted one meg SIMMs from Turbo

Technologies, Inc.

Buy 4 SIMMS at our low prices and get a

Macintosh Opening Kit (Includes Torx Driver,

Pryer Tool and Wrist

Strap-a \$19.95 Value) for

FREE!

Turbo Technologies, Inc.

1 (516) 625-3258

CIRCLE 228 ON READER SERVICE CARD

In MN (612) 920-CARE (2273)

Dealer inquiries welcome

Minneapolis, MN 55410 FAX: (612) 925-2720 CIRCLE 223 ON READER SERVICE CARD



4MB High Profile 16 - 32MB For Mac IIx Perfect For A/UX

1MB High Profile

2 - 8MB For Mac Plus, SE, II and IIx

256K Low Profile Ideal for MAC PLUS

> We Stock: 120ns SIMMs 100ns SIMMs 80ns SIMMs

■ Guaranteed Same Day Shipment

Computer

5124 Russell Ave S

Care.

Inc.

 University and Corporate Purchase Orders Accepted Ask about our Exclusive Extended Warranty

Call Our Memory Hotline For Prices and Discounts

1-800-678-DRAM (678-3726)

Ombek/Spring '89
April 10-13, 1989
McCormick Place

1117 S. Rock Rd., Suite 4 * Wichita, KS 67207 Phone (316) 685-4904 • FAX (316) 685-9368

In Canada Contact: Tallgrass Technologies, Canada, Inc. • 1775 Meyerside Drive #1
• Mississauga, Ontario L5T 1E2 • (416) 673-3244 • FAX (416) 673-3926

DartCard" ADDithON" attention!" Concentration" Solid State Hard Disk Compaq Memory

Extended Memory

Expanded Memory

CIRCLE 224 ON READER SERVICE CARD

ONE MEG SIMMs

Direct from manufacturer. Available immediately in both surface mount and DIP SIMM format. Call for current pricing information. MasterCard/Visa

'分三了 MICRO ELECTRONIC TECHNOLOGIES INC. 35 South Street Hopkinton, MA 01748 (508) 435-9057

CIRCLE 227 ON READER SERVICE CARD

LOW COST SIMMS!! For Mac II, SE & Plus

1 MEG

LOW PROFILE (Not a Dip Simm!)

256k

Volume discounts are available. VISA & Master Cards are welcome. BARGAINS N' DEALS

(* Prices are subject to change without prior notice). (415) 683-0908 • Fremont, CA

ORDER: 1-800-446-2433 (Outside California)

MACIL Meg Increase \$ 489 \$ 349 4 Meg Increase \$1,895 \$1180 SE or Plus -



Flatbed SCANNERs from \$1,595!

300dpl (non-gray) scale \$1595 • 300dpl 64 gray level \$2095 300dpl 256 gray level \$30961 All include \$CSI interfacel

Internal & External Hard Drives for Mac II/SE Intern: 40mb \$5891 • 80mb \$8991 • 100mb \$ 10291 External: 20mb \$532 • 40mb \$699 • 80mb \$999 • 100mb \$1129

DOUBLE the speed of your SE-\$299.!

AOX Accelerator • Easy installation • 16Mhz microprocessor 100% compatible • with all software and external hardware Second Source (602) 966-0357

2011 E. 5th Street, Suite 6 • Tempe, AZ 85281

NETWORKING

PhoneNET® System

The PhoneNet System is a network solution that includes a complete line of hardware and software products to help you build your networks, manage them, and use them to their full potential. Components include PhoneNET Connectors, the PhoneNET Repeater, the PhoneNET StarController" with StarCommand" soft ware, TrafficWatch ". PhoneNET CheckNET" Timbuktu" and Timbuktu/Remote" and ScreenRecorder "

FARALLON COMPUTING 2150 Kittredge Street Berkeley, CA 94704 (415)849-2331

PERIPHERALS



REPLACES MAC II MOUSE

- Noncontacting inductive joystickno moving electrical parts
- Sealed keyboard enclosure for harsh environments

PATENTS PENDING

CTI ELECTRONICS CORP.

200 Benton Street Stratford, CT 06497 TEL: 203/386-9779 FAX: 203/378-4986

MAC II IS A REGISTERED TRADEMARK OF APPLE

CIRCLE 229 ON READER SERVICE CARD

HARD DRIVES LIFETIME WARRANTY

MEG INTERNAL \$349 20 MEG INTERNAL \$349 31 MEG INTERNAL \$415 46 MEG INTERNAL \$489 20 MEG EXTERNAL \$465 31 MEG EXTERNAL \$510 41 MEG EXTERNAL \$565 46 MEG EXTERNAL \$629 61 MEG EXTERNAL \$629 80 MEG EXTERNAL \$804

Fits in SE+Mac II with 2 drives Include PD+Backup Software External fits under Mac Seagate-Miniscribe-Quantum

WESTCOM COMPUTER P.O.Box 154-Ayden, NC 28513

800-422-8591-919-746-4961

PERIPHERALS

External SCSI Hard Drives

For Mac Plus, SE, II and IIx

MiniScribe Mechanism, 1 Year Warranty

20meg/68ms \$449

Seagate Mechanism, 1 Year Warranty

30meg/28ms \$499 46meg/28ms \$649 Quantum Mechanism, 2 Year Warranty 40meg/12ms* \$649

80meg/12ms* \$999

With 64K Cache Chip

•PREFORMATTED

·LED BUSY LIGHT

ZERO FOOTPRINT



•TWIN SCSI PORTS ·CABLES, MANUAL

FORMATTER WITH TRUE PARTITIONING

SONY MECHANISM 800K EXTERNAL DRIVE \$149

2400 BAUD EXTERNAL MODEM FOR MAC \$159

MajorMag: 800-622-3384

VISA

10606 BALTIMORE AVENUE, BELTSVILLE, MD 20705 (301) 937-1778 NO SURCHARGE FOR VISAMASTERCARD. SHIPPING EXTRA CIRCLE 231 ON READER SERVICE CARD



<u> Mac-cessory</u>

Unmatched Service & Support

EVEREX Hard Drives EMAC-20D \$509

EMAC-40+IMP 12MS \$835 We carry the entire

Everex Linei

Giga Cell Systems-Nu-DATA

CETA 20 MB \$489

Data Cell 60 Call for other Giga Cell products

NO SURCHARGE FOR VISA & MC We DO NOT charge credit cards till order ship

800-634-1497

MC or call 216-543-1952 Visa Valley Computers 16744 W. Park Circle Chagrin Palls, OH 44022

CIRCLE 232 ON READER SERVICE CARD

PRINTERS

APPLE DAISYWHEEL PRINTER

True Letter quality on all Mac's & Apple II's. Proportional spacing, boldface, 198 columns Fast 40 cps speed and full 130 character printwheel. NEW \$449, RECOND. \$349 includes easy MAC point-&-click driver software. & cable. New bi-dir tractor \$99, sheetfeeder \$49 All heavy duty with 90-day guarantee. Quality Discount Computers, Inc. 135 Artist View Drive Wellington, NV 89444 (702)465-2473, (415)487-8148

SECURITY

Mac Lock/Mac Cables

Mac Lock, finest security kit for Mac/+, Se, Mac II, secures Mac, keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinylcovered steel 3/16" cables. Lock included. No tools req. \$-back guarantee. Also, all IBM, Apple II, \$49.95. Mac Cables provide any length custom cables for Mac/+ (incl. keyboard) or almost any computer need. \$20 & up. MAC PRODUCTS

20231 San Gabriel Valley Dr. Walnut CA 91789 (714)595-4838

SOFTWARE

ACCOUNTING



highly efficient automated laint of sale system. It is easy a learn. It is easy to use. And it uns single or multi-user. Supports a cash drawer, bar-code reader, & receipt printer

CALL TODAY for free brochure Demo Avallable (7)7) 411-2412, 2415 POINT . OF . SALE . SYSTEM

INVENTORY & SALES CONTROL INVOICING - PRICE QUOTATION ACCOUNTS RECEIVABLE EXTENSIVE REPORTING FUNCTIONS

ACCOUNTING

TIME SAVER PAYROLL 5.0

UPDATED FOR 1989 . FULL FEATURED SYS-TEM . salaried, hourly comm. & tips . 11 deductions incl. Fed/St/Loc taxes . 401k ded. . Tax tables edited by user. Reports incl. 941, FUTA, SUTA & W2's Prints checks. Requires EXCEL. \$99.50 + \$3 s/h. Demo \$15 (applied to purchase).

WESTERN SOFTWARE ASSOCIATES 110 El Dorado Rd Walnut Creek, CA 94595 (415) 932-3999

POINT OF SALE & BILLING

Easy to use ShopKeeper™ handles all sales & billing functions, inventory control, A/R. customer data, mailing labels, packing slips, cash drawer control, receipts, bar code labels, price schedules, multiple tax rates, numerous reports, and more. Stall trains in 15 minutes. Single user \$395. Multiuser \$495. Demo \$6. ShopKeeper Software. Inc. P.O. Box 38160 Tallahassee, FL 32315 (904) 222-8808

BAR CODE

PrintBar Mac

BAR CODE FONTS FOR THE MAC

- . Code 39 and UPC symbologies.
- . PostScript fonts for the LaserWriter. · Bit-mapped fonts for screen and ImageWriter.
- · Use PrintBar MacTM with any software
- · CodeScanTM bar code reader works as second keyboard.

(916) 622-4640 / FAX 916 622 4775

Bear Rock

6069 Enterprise Dr., Placerville CA 95667 CIRCLE 234 ON READER SERVICE CARD

BUSINESS

Mail Order Manager

SuperMOM is a turnkey database solution for catalog, direct marketing businesses. Order entry, accounts receivable, inventory, report generator, list management, UPS, multiple ship-to, group pricing, multi-user. Thorough tracking of marketing, inquiries, promotional response and sales. Demo avail National Tele-Press

P.O. Box 79 Mendocino, CA 95460 (707) 937-2848

BUSINESS

category continued on next page . . .

BUSINESS

Strategic Business & Marketing Plans

BizPlamBuilder Quickly and easily complete an effective business marketing plan for presentation to senior management, investors or clients. A comprehensive and proven framework Over 85 pages of outlines, headlines structured sentences & paragraphs, lists, suggestions...already typed & formatted in 29 MacWrite™ & MS WORD™ files. Includes spreadsheet financials in ExcelTM.

Marketing & Sales Oriented

Everything you will need to organize, describe, promote & support your venture. (Similar to reverse engineering where the best elements of good plans are cut & Stephing Stylings
Converted to the controls
pasted together.) No blank pages. Follow

the tutorials & edit into a finished plan. Includes manual. Preferred by investment capital experts, corporate managers & experienced consultants.

Also available:

Investment Capital Sources

· Domestic & International Marketing · Employee Handbook Template

Tools For Sales

Roadmans to Better Mousetraps 13335 Wilderest Drive + Lo 800/ 442-7373 • 415/ 941-9191

Visa \$9900 + \$3 Shipping & 7% Tax (CA) MC 30-day acceptance / return. Site licenses available.

CIRCLE 236 ON READER SERVICE CARD

HeadStart™ 2.0

Templates for MS Excel™

- 50 pre-built spreadsheets for finance, business management, & personal use.
- Save time and effort. Avoid mistakes.
- · New version. More macros and charts.

Terrific value! Send for more info Money back guarantee.

only \$59.95 ppd

HeadStart Software P.O. Box 51596 Durham, NC 27717

VISA/MC, call 919/556-8792 CIRCLE 238 ON READER SERVICE CARD

FLOWCHART DRAWING TOOL \$59.95 PLUS \$3.00 SHIP&HANDLING Texas residents add 8% sales tax

Send \$5 for 800K Demo Disk Requires MAC 512E, +, SE, or II

FLOWer

Standard Flowchart Symbols

Offpage link to other charts

7713 SHADOW HILL LANE HOUSTON, TEXAS 77072

(713) 530-0542

Automatic Text Entry

from clipboard Automatic Line Rerouting

Custom Symbols can be added

唱.

te it important

Yer De What is

(Exit Function)



TELEROBOTIC INTERNATIONAL, INC.

EDUCATIONAL

Now in 3rd release and in color! Visual author-

ing languages that allow you to create stan-

dalone courseware for teaching, training and

testing. Powerful built-in features include draw-

ing, painting, animation, voice, music, grading,

intelligent branching and video interface. \$10

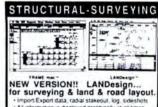
demo disks available

Knoxville, TN 37931

(615)690-5600

8410 Oak Ridge Highway

THE COURSE BUILDER SERIES



information is displayed graphically at all times ints, lines, curves, boundaries and traverses can liadded, changed, copied, pasted, and displicate

FRAME mac. BEAM mac 2, BEAM mac for structural analysis of 2-D frames, trusses, and beam MacShapes for calculating structural properties

il programs have full Macintosh interfaces. Money bacquarantee, free support. From \$145-\$595. Visa or MC

Compuneering Inc. - (416) 738-4601 113 McCabe Crescent Thornhill, Ontario L4J 256 CANADA

CIRCLE 241 ON READER SERVICE CARD

MiniCad by Diehl Graphsoft boasts 1000 power

zoom, internal symbol library, 40 layers, auto-

dimensioning, double line tool, clip/add/

intersect polygons tools, object snap, fillet &

trim lines tools, object sizer and locator, 9

decimals accuracy, full 2D and 3D modes and

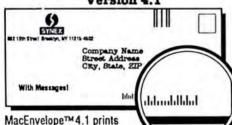
more MiniCard reads MacDraw and MacDraft

Express yourself!

Bar code your mail and speed delivery with

MacEnvelope

Envelope Printing Version 4.1



addresses, graphics, messages, fonts, styles, sizes, imports lists. saves addresses and speeds your mail through the postal system with automatic bar coding. It's like having express mall for 25¢.

Now prints labels!

(800) 447-9639 Check/Visa/MC \$89.95 + \$3 s/h (NY add tax) 512KE or larger SYNEX 692 10th St., Brooklyn NY 11215 SYNEX



DATABASE

CIRCLE 239 ON READER SERVICE CARD

BOOKENDS MAC

(313) 528-1950

Bookends is a specialized database for managing your references. You can quickly put your finger on any article from books, journals, or newspapers. When it comes time to print your bibliography, Bookends outputs your bibliography in almost any style without reentering references, \$99.95 Sensible Software, Inc. 335 E Big Beaver, Ste. 207 Troy, MI 48083

files \$495 Demo available COMPSERVCO

800 Freedom Lane Slidell, LA 70458

MINICAD 3.0

(800)272-5533 or (504)649-0484

Business Plans & Forecasts

Business Plan ToolkitTM. Build a complete professional business plan. Includes sample outline; texts; spreadsheet models and charts for financial analyses, budgets, forecasts; and practical, easy-to-follow manual. \$99.95 Optional HyperCard business plan text guide, \$19.95.

Financial Forecasting ToolkitTM. Simplify cash flow and financial planning with models, charts, macros, and practical manual. \$69.95

Sales and Market Forecasting ToolkitTM. Improve your forecast with proven methodologies using models, charts, macros, and manual. \$69.95 All toolkits require Excel, Works, or MultiPlan. Charts and macros with Excel only. Add \$5 Shipping & handling per order. CA residents add 7% tax.

Palo Alto Software

(415) 325-3190

260 Sheridan Ave., Suite 219 Palo Alto, CA 94306 CIRCLE 237 ON READER SERVICE CARD

(800) 336-5544

DESKTOP PUBLISHING

The Page 24 Adding tonts

Monthly Desktop Publishing Guide

16 pages of tips, procedures, ideas, and examples for the beginning, intermediate, and advanced page designer. PageMaker, XPress, word processing, graphics, type, charts, laser printers, scanning. Written and designed by working professionals who know how to get the most from the Mac. \$55/year US (12 issues). Send \$1 for sample issue. The Page, Box 14493, Dept. MU8, Chicago, IL 60614

CIRCLE 240 ON READER SERVICE CARD

ENGINEERING

DesignWorks

rofessional, fully integrated schematic imulation on the Macintosh, featuring:

- · fully interactive digital simulation with logic-analyzer style timing display

- logic-analyzer style liming display

 * customizable net and component lists for
 interface with PCB layout and other systems

 * 7400, 4000, 10K, LSI and analog libraries

 * advanced editing features including bussing,
 symbol rotations, device and line dragging,
 Cut/Copy/Paste, multi-page drawings

 * dot-matrix, laser printer, pen plotter output

 * user-definable devices, RAMs, PROMs and
 PLAs with full simulation

LPLC

Now you can use the Macintosh to develop Now you can use the Macintosh to develor and test circuit designs using Programmal Logic Devices. Full support for devices from MMI, AMD, Signetics, Lattice and others. High-level language constucts support Boolean equations, state machine entry, integer fields, etc. Full simulation support when used with DesignWorks.

DesignWorks: \$685 LPLC: \$535



545-108th Nr., Suite 6 Bellevne WA 98004 (604) 669-6343

CIRCLE 272 ON READER SERVICE CARD



8048 family 8051 family 8055 family 8056 5/8080 family 78 family 78 family 78076 180 family

Fast, Full Macutush interface. Output downloads to most EPROM programmers. Features macros, condi-tional assy, local and automatic labels, symbol, table cross-ref, module sectioning. Eating included, MCV. Micro Dialects, Inc. Dept 1

(513) 271-9100 CIRCLE 242 ON READER SERVICE CARD

CONVERTUNITS

A powerful Unit Conversion Desk Accessory and HyperCard Stack for the Mac. Databases include: Basics. Electricity, Heat, History, Light & Radiation, Mechanics, Unit Cost & Quantities. Time and Whimsy. Features 58 physical constants. 13 compound units such as "feet, inches, and fractions" & over 1500 units \$59 95 ea. or \$74.95 (U.S.) for both versions. MC/V/COD/MO/Check

GRAPHICTEXT APPLICATIONS INC. 815 Princess Ave. Vancouver, B.C., V6A 3E5 (604) 255-8077

ENTERTAINMENT/GAMES

Graphic Astrology The Gamma Series . . .



The Perfect Gift! The Gamma Edition Chart Interpreter \$199.50 Gamma & Interpreter \$325.00 Gamma Basic \$ 59.50

Astrology for Everyone!

Time Cycles Research 27 Dimmock Road Waterford, CT 06385

C

(203) 444-6641 CIRCLE 243 ON READER SERVICE CARD

Supports Laser & Mac II Write or Call for brochure

MC/Visa OK

ADULT GRAPHICS Dozens of beautiful women on 4 disks. \$29.95 ppd. Over 21 years only! State age on order. Gold Coast Computing Services

Box 1257-M Secaucus, NJ 07096-1257 CIRCLE 244 ON READER SERVICE CARD

Rotisserie League Baseball



Box Score Baseball provides the Greates Thrill for Baseball Fans since Baseball.

Experience the excitement of managing your own Major League Franchise. Draft Major League players and battle for the pennant. Game maintains teams league atming, waivers, tracker, reserves, player state and the official Rotisseric League rules are built in.

"A must for any Fan !" orhood league Start your own office or neighborhood lea Order Now, Don't miss the 1989 Sea Only \$34.95 Premier Software 26 Prosa, Irvine, CA 92720 (714) 731-7257 CIRCLE 245 ON READER SERVICE CARD

MacInooga Choo-Choo

Pardon me boys, is this the MacInooga Choo-Choo? Yes, an electronic train set! Build elaborate railroad systems on your Mac. Bring them to life with a click. Place desired tracks, cars, scenery on layouts of one screen or more. Run at night! Use MacPaint for scenery, \$49.95 + \$4 p/h. ck/mo/visa/mc/amex. **ABRACADATA**

P.O. Box 2440, Dept. MU Eugene, OR 97402 (503) 342-3030

NEMESIS" Go Master*

Go, a game of strategic elegance, has been a way of life in the Orient for over four thousand years. Many consider Go to be the secret of the Japanese businessman's sucess. While these is a game of war. Go is a game of market share [President of Nikko Hotels].

'If you are interested in Go. buy this program." 1. Pournelle

of the Mo Toyogo, Inc. (617) 861-0488 76 Bedford Street, #34-U. Lexington. MA 02173 579 Go Master®, \$49 Joseki Tutor™,

\$59 Tactical Wizard™ Add \$6 U.S. S&H CIRCLE 246 ON READER SERVICE CARD

SPORTS HANDICAPPING SW

\$\$WIN with horse racing & greyhound handicapping software-\$32.95, \$52.95, \$67.95. \$77.95 each. Up to 17 entries analyzed: class, speed, times, odds, track, post, stretch, & finish. Pro Football, Baseball, Basketball Software-\$52.95. Handicap races & games in minutes. MC/VISA accepted. Free info. SOFTWARE EXCHANGE PO Box 5382-MU

W Bloomfield, MI 48033 (313) 626-7208 Orders: 1-800-527-9467

FONTS

Beverly Hills

"Best Imagewriter" font available!"

- "Typeset" look, 11 sizes, 6-36 pts.
- Multi-digit fractions; horiz. lines
- Fine spacing, math/musical symbols Includes disc, 70-p. printed manual
 - Two compatible versions available:
 - v 2.0 (ImageWriter I or II): \$29.95 · v LQ-1.0 (IW LQ, Mac +): \$39.95
- Direct orders, add \$3.00 S/H (plus
- \$1.80 or \$2.40 sales tax in Calif.) Site licenses; dealer inquiries invited

ADH Software P.O. Box 67129 Los Angeles, CA 90067-0129

CIRCLE 247 ON READER SERVICE CARD

DOWNLOADABLE LASERWRITER FONTS

ããΑ VαβγΦΨΑ∮∓11



FOR FOREIGN LANGUAGE TEXTS Μῆνιν ἄειδε θεά, Πηληϊάδεω 'Αχιλῆος aczćźlśń A Ę Z CZŁŚ N

ALLOTYPE TYPOGRAPHICS 1600 PACKARD ROAD SUITE 5 ANN ARBOR, MICHIGAN 48104 (313) 663–1989

with all Macin

CIRCLE 248 ON READER SERVICE CARD

TEXTWARE CORP



MIAMPA TEXTWARE CORP has now made available quality laser fonts from hot metal type faces.

POSTSCRIPT ® COMPATIBLE

1340 EAST PENDER STREET VANCOUVER BC V5L 1V8 Tel: 604-253-0815 Fax: 604-255-2601

CIRCLE 249 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

The most thrilling election in history comes alive in this remarkable hypertext! Manage Roosevelt's campaign, read authentic news, send telegrams to political leaders. Serious historical hypertext for grownups of all ages. \$45 from Eastgate Systems, 134 Main St. Watertown MA 02172 (617) 782-9044 CIRCLE 295 ON READER SERVICE CARD

FONTS

18 POSTSCRIPT FONTS FOR 563

ArchiText[™] **Briar** UpStart Caspian

Also: ArrowDynamic™ BulletsNstuff™ and MORE!

Orders or samples call (312) 441-6699 or write EmDash, P.O.Box 8256, Northfield, IL 60093 CIRCLE 250 ON READER SERVICE CARD

EmDash

FONTS

Alphabits fonts for the Mac

Bitmap fonts to broaden the output options of any ImageWriter II, LQ or LaserWriter IISC, as well as any printer connected with an Orange Micro Grappler® LS or LQ. Only \$99 for all 7 fonts!

Cooper Blippo Cloister Dutch Italic Garamond Broadway Zapf Chancery Call: (800) 223-8029

In CA: (714) 779-2772 Orange Micro, Inc., Anaheim CA CIRCLE 251 ON READER SERVICE CARD

DETACES!

FLUENT FONTS 2.0 FULNI PASTR, FONIS

Sixty-six different typestyles, borders and graphic images for the Macintosh® and ImageWriter®.

Macintosh and LaserWriter or other PostScript® compatible the most useful and beautiful typeprinters. Easy to install and faces we've seen. - Macintosh Bible scale to any size

Orders: (800) 331-4321 or in California (800) 851-1986 Information: (408) 624-8716

Casady & Greene, Inc.

P.O. Box 223779 • Carmel. California 93922 CIRCLE 252 DN READER SERVICE CARD

POSTSCRIPT SUPER-FONTS! ONLY \$30!

Sarge BUBBLE Charlie Chan

Modern Casual & more!

1 font \$30 2 fonts \$55 3 fonts \$80 4 fonts \$105 call for more

Twenty-two volumes for the

WRS Productions • 6 Cold Spring Dr. • New Fairfield, CT 06812 203-746-3496

CIRCLE 253 ON READER SERVICE CARD

GRAPHICS

ADD THAT DAZZLING TOUCH...PostScript MASTERWORKS™ NEWI



ART NOUVEAU IMAGES Volume 1 • EPS Format \$79.95 + \$3 S&H (U.S.) Check/Visa/MC • Contact: SILICON DESIGNS P.O.Box 2234, Orinda, CA 94563 (415) 254-1460

MacPLOT MacCAD

MacPlot by Microspot is the "chooser" level plotter driver of choice. It will plot any object oriented graphics produced on the Mac using "print" command. It supports over 50 plotters. MacCad is a series of 12 separate architectural & engineering template symbol libraries for use with MacDraw, MacDraft, MiniCAD, etc. COMPSERVCO

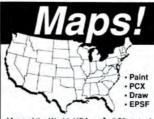
800 Freedom Lane Slidell, LA 70458 (800) 272-5533 or (504) 649-0484

CADMOVER

CADMOVER creates multiple bridges between many IID and IIID CAD systems in today's market. Graphic file formats which it can handle include: DXF, IGES, PICT, MiniCAD, MacDraw, MacDraft, and MSC/pal formats. The Data transfer may be done by modern or by disk (such as the Dayna One or the Apple 5.25"). COMPSERVCO

800 Freedom Lane Slidell, LA 70458 (800) 272-5533 or (504) 649-0484

GRAPHICS



Maps of the World, USA, and all 50 states All major Macintosh & IBM formats. Ideal for publications and presentations.

> For FREE brochure call or write:

800-334-4291

CIRCLE 255 ON READER SERVICE CARD

Professional Quality

Color **PostScript** Art

Totem Graphics

5109-A Capitol Blvd. Tumwater, WA 98501-4415 (206)352-1851 CIRCLE 256 ON READER SERVICE CARD

WE NEED YOUR HELP!!

IMAGINE is conducting a survey of Mac users What we want to know is what graphic packages do you use for slides? 2K or 4K? Modern or Fax? What price do you want to pay? How fast do you want them? What else would you like to have available as a service for your presentation needs? CALL Stewart Van Dorn

Research Department (312) 299-6390

MAC-ART LIBRARY

Illustrate your ideas with the MAC-ART LI-BRARY! Twelve disks of professional MacPaint images: • Transportation • Flowers/Plants • Symbols/Borders . Greeting Cards . Farm Life · Geography · Buildings · Animals · Sports Kitchen • People • Tools \$39.95/disk. \$250/set. \$49.95/sampler. \$3.00s/h

CompuCRAFT P.O. Box 3155 Englewood, CO 80155 (303) 791-2077

ArmyArt · NavyArt · AirArt

Each package contains clip art on that particular military branch: people, vehicles, equipment. aircraft and spacecraft, ships, insignia, emblems, badges, and more. NavyArt includes Marine Corps. MacPaint format, hundreds of images. Each package \$69 95 plus \$3 s/h. STORM KING TECHNOLOGY Post Office Box 185 Wilson, Wyoming 83014 Message Center: (800) 331-4460

Grab ANY image from the Macintosh screen!

Concet Retp

This DA lets you grab ANY area of the screen, even the menu bar! The image may be saved to the Clip-board, a MacPaint™ file or even as a PICT resource The image can then be used in other programs

ONLY \$19.95

New World Computing P.O. Box 81070 • Fairbanks, AK 99708 (907) 479-0089

CIRCLE 257 ON READER SERVICE CARD

Professional **CAD Symbol Library**

Over 2,000 Symbols in One All-Inclusive Package For All of Your CAD Needs:

Mechanical Electronics Architectural Hardware General Drawing Aids

And Much More, All for \$79.95! For A Limited Compatible with ClansCAD™ and MacDraw II™

(303) 674-2222 to Order

Advanced System Design, Inc.

1010 Stagecoach Blvd., P.O. Box 3131 Evergreen Colorado 80439 CIRCLE 258 ON READER SERVICE CARD

HEALTH

ANALYZE DIETS, MENUS & ...

so much more! With The FOOD PROCESSOR II! . This TOP-rated software has the best database of any system on the market today! Acclaimed by schools-colleges-hospitalshomes-fitness centers & businesses nationwide. • 2400-3300 foods-30 nutrients. \$250. CALL OR WRITE TODAY FOR FREE DEMO! ESHA RESEARCH PO BOX 13028, Dept. C SALEM, OR 97309 (503) 585-6242/7755

MacUser Marketplace

To place your ad call

(212) 503-5115 or (800) 825-4ADS

LANGUAGE TOOLS

FORTRAN Power on Your Desktop

No need to wait for time on the "big" computer any longer! Language Systems FORTRAN lets you develop and run the same high performance FORTRAN programs at your

VAX-compatible extensions, high precision IEEE floating point data types, complete access to the Toolbox, direct code generation for the Macintosh II, and the MPW programming environment make this compiler the most powerful FORTRAN for the Macintosh.

> Language Systems FORTRAN the power to do it at your desk.



441 Carlisle Drive, Herndon, VA 22070 (703)478-0181

Requires a hard disk and a Macintosh IIx, II, SE or Plus CIRCLE 259 ON READER SERVICE CARD

MacUser Marketplace

Standard directory listings available for a minimum of 3 issues at \$345.00 per issue (\$1,035.00 total).

For additional information call Account Representatives;

Mary Jo Nash

Dennis M. Leavey

Wes Walton

Call (212) 503-5115 or (800) 825-4ADS

MUSIC/MIDI





PUBLIC DOMAIN

FREE **PUBLIC DOMAIN &** SHAREWARE CATALOG

Lowest Price **Best Quality** Fast Service

Over 1000 Macintosh Software

SOFTSHOPPE

POB 709, Ann Arbor, MI 48105 (313) 763-8721 CIRCLE 262 ON READER SERVICE CARD

(512) 331-8170

Tired of getting what they want to send you? Choose an 800k disk of what YOU want from our library of over 300 meg of high quality shareware & public domain software, graphics, games, DA's, fonts, utilities & stacks ONLY \$15. Prices reduce for multiple disks. Send \$5. (refundable) for a catalog **HK Distribution** P.O Box 201432 Austin, TX 78720-1432

PUBLIC DOMAIN/SHAREWARE

- SPECIAL INTRODUCTORY PACK
- 100 Games 100 Desk Accessories
- 100 Fonts 18 Business Applications · 318 Programs on 7-800k disks

All 318 programs for \$29.95 + \$4.00 s/h COD. AMEX & Check Accepted Catalogue \$2.00 Any of our 800k full disks-3 for \$13.00 DoMain Chain P.O. Box 366 Bronte, TX 76933 (915) 473-3291

PUBLIC DOMAIN

Public Domain/Shareware/Stackware

- .100's of full disks to choose from
- •\$2.50-SS 400k disks \$4.50-DS800k disks . Checks, Visa, MC Accented
- NO MEMBERSHIP FEES.
- Send \$2 00 (refundable) for directory on disk Also: VCR training for Pagemaker avail. **USPD** Library P.O. Box 119 Dept MU Clinton, IN 37716 (615) 457-3317 Aft 4:00 pm EST

MacUser Marketplace

is a special economical section for product and service listings.

RELIGION

The Perfect WORDTM Bible Study Software

for the Apple® Macintosh®

Super Concordance Capability Search for words and phrases

Texts currently available:

- · King James Version
- · New International Version
- Revised Standard Version
- · Greek New Testament
- Hebrew Bible
- Outstanding speed
- · AND, OR, NOT logic and proximity searches
- Word count statistics
- Simultaneous viewing of different versions



In the beginning

בראשית מֹצְאַמָּה בראשית

- · Greek and Hebrew pointed and accented
- True right-to-left Hebrew
- · Easy to export text to other programs

30 day money back guarantee Send for our fully featured demo (Genesis-KIV) \$5

Star Software, Inc. (407) 831-8050 228 Live Oaks Blvd. #UA . Casselberry, FL 32707 . USA

CIRCLE 263 ON READER SERVICE CARD

New dimensions in Bible study

THE WORD processor A comprehensive Bible study program. Instant access to any verse in the Bible. You can search for any word or phrase and build indexes to record your study. Separate windows for comparing various verses and translations. Only \$199.95

> Our family of products Choose from NIV, RSV, KJV or NKJV text. Add Greek or Hebrew transliterators or topical cross references, personal commentary, a chronological Bible and chain references. Our memory resident VERSE TYPIST transfers verses to your word processor.

Bible Research Systems (512)251-7541

2013 Wells Branch Parkway #304 Austin, Texas 78728 Postage extra. For IBM, MSDOS, Macintosh. Some products for Apple II.

CIRCLE 264 ON READER SERVICE CARD

SCIENTIFIC

Equations Made Easy

See 5 Mice Review in this issue's MiniFinders under Word Processing

Expressionist[™]2.0

Interface

A powerful application and desk accessory that generates equations for word processing and Desktop Publishing.

allan bonadio associates 814 Castro #51, SF, CA 94114, (415) 282-5864 \$129.95 CIRCLE 265 ON READER SERVICE CARD

MATHEMATICIANS—ENGINEERS

Have you ever seen functions of a complex variable? Would you like to really understand differential operators like div. grad and curl? How about a peek into the fourth dimension? Call or write for information on our latest Macintosh software.

Lascaux Graphics 3220 Steuben Avenue Bronx, NY 10467 (212)654-7429

SHAREWARE

FREE SHAREWARE

INTRODUCTORY OFFER

- 3 loaded 800k disks for Mac
- Over 20 latest programs
- Never before distributed
- Plus our latest catalog
- No charge for software. Pay only \$7.75 s/h
- Visa/MC/Amex/Check International Software Library 511 Encinitas Blvd. Ste 104 Encinitas, CA, 92024 800 669-2669

CIRCLE 266 ON READER SERVICE CARD

STACKWARE

Uncle Max has

excellent stax for taxing times.

Extract your refund with Tax StackTM and MH Accountanto. Excape the

pressure with What's His/Her Face ... ?@ and Angus MacFlyo.

> Write now for your free Rax of StaxTM catalog.



P.O. Box 2719, Dept. 1 Oakland, CA 94602 CIRCLE 267 ON READER SERVICE CARD

STACKWARE

HYPERCHEF

\$49.95

- Add recipes
- · Print grocery lists

Tell HyperChef what you have in your cupboard and he will tell you what recipes to make! Bright Ideas, Inc.

87A Ocean St.; So. Portland, ME 04106 1-800-272-1330

FREE COOKING MITT!

CIRCLE 268 ON READER SERVICE CARD

STACKS AND UTILITIES

- MacBliss: BCI Blissymbols for the Mac.
 Font, Typing Util, Dictionary: Spec Ed \$60
- · Roots and Branches" Genealogy Stack: Automatic Cross-Indexing, chart making \$40
- Zen Master's I-Jing "Solve Mystical Poetic Oriental Riddles with I-Jing Diagrams \$10
- Dictionary Maker " Make Flash Cards! \$10

PO Box 1113 - Dept U Fairfield, IA 52556 (515) 472-6461 (M-F 3-4pm central)

MacRecorder' Sound System

When graphics and text are not enough, give your presentations a more dramatic dimension—narration and sound. The Mac-Recorder sound digitizer, SoundEdit " and HyperSound" software that let you record and play back live or pre-recorded sound on your Macintosh, Combine with Apple's HyperCard " and Farallon's ScreenRecorder" (available separately) to create new multi-media platforms to train, educate, and communicate in busi-

Farallon Computing 2150 Kittredge Street Berkeley, CA 94704 (415)849-2331

CLIENT MEANS BUSINESS!

CLIENT", user customizable client & sales management system, maintains customers, business & financial information, contact history & more. Spec features: pop-up choice lists for fields, redefine field names & formats, search by any combination of fields, mail labels. Incl latest Hypercard* \$195

Softworks Inc. Box 2285 Huntington, CT 06484 (203)926-1116

STACKWARE

llyperTools™ #1 includes: Icon Editor, Scan Cards, Alignment & Array Creation Tools, Script Cross Reference & Font Tools, XCMD tools, Button Tools and more. 16 Tools in all for stack design! \$99.95

HyperTools™ #2 includes: Multiple Choice Lists for Fields, Field Sorting, Formatting & Data Validation, Sound Tools, Group Tools, Font Tools and more. 16 tools for visual presentation of data! \$99.95

Stack Cleaner™, a utility set. Complete menu creation & editing facility for stacks including standard menu resources & hierarchical menus. A script cleaner to reduce the size of scripts by using standard abbreviations. Plus utilities to merge, split, and clone stacks. \$49.95

Softworks Inc. PO Box 2285 Huntington, CT 06484 (203)926-1116 CIRCLE 269 ON READER SERVICE CARD

Great Business Stacks...

'88 SuperStacks Award Winner! Copyrights, Trademarks & Pat.

e

- What Can be Registered and How,
 Do You Need an Attorney?
 Fees, Payment Methods, etc.,
 Legal Definitions, Hotline #'s
 Fill-out-on-screen Application Forms
 Examination Procedures, and more!

Only \$49.95

Business Letters HyperFast! Business LetterBASE

- · Includes 200 Pre-written letters! Add Letters, Automatic Indexing,
 Import/Export Letters/Documents
 Print w/ Margins from HyperCard!
- State Abbrevs., Forms of Address, Punctuation Tips, 3 800K Disks!

Only\$99.95 713-872-8085

Labs: 14400 Ella Blvd.Ste.150 : Houston.TX 77014 # 1989

CIRCLE 270 ON READER SERVICE CARD

PARLEZ!

Hyperworks. Tools

Need to make global changes in scripts? Draw or move groups of objects? Make help cards? Let Tools from Hyperworks make your work easier. Work on single scripts or groups. Put any script or text onto the Tools Workdesk and use the editing Tools to make global changes, count, sort, number, find, add soft returns, offset groups of numbers, and more! Introductory price \$59.95

Call 1-800-544-0339 for orders only.

Hyperworks.

PO Box 5201, Mission Hills, CA 91345 CIRCLE 271 ON READER SERVICE CARD

CLR HyperArrays

Add the ability to work efficiently with numeric arrays to HyperCard. This set of 24 XCMD's and XFCN's allows performance increases from 10 to 100 times. Sum, sum of squares, matrix multiplication, addition, etc., and much more are provided. Also included are XCMDs for sorting fields. \$65.

Clear Lake Research 5615 Morning Side Suite 127 Houston, TX 77005 (713)523-7842

French Pronunciation Tutor. Over 2 MBs of digitized native-speaker voice reproduction. Extensive notes and rules. Pronounce like a native. High-quality sound. \$49.95 + \$2.50 S&H. Reg. HC 1.2x. Stacks also available in German, Spanish, and Russian. Verb and vocab exercises. MC, Visa. The HyperGlot Soltware Co.

505 Forest Hills Blvd Knoxville, TN 37919 (615) 558-8270

STATISTICS

RATS Version 3.0

RATS is an integrated environment for data analysis, forecasting and graphics. Forecast with Box-Jenkins (ARIMA), exponential smoothing, vector autoregressions, large models and others. Choose from a wide variety of techniques to analyze your data, from stepwise regression to logit and probit, from two-stage least squares to spectral analysis. \$300.00 VAR Econometrics, Inc.

P.O. Box 1818 Evanston, IL 60204-1818 (312)864-8772: (800)822-8038

MacUser Marketplace

Standard directory listings available for a minimum of 3 issues at \$345.00 per issue (\$1,035.00 total).

> Call (212) 503-5115 or (800) 825-4ADS

TAXES

BOTTOMLINE TAX TEMPLATES

For EXCEL. BOTTOMLINE calculates personal & business tax returns. Corporate, Partnership, Sole Proprietorship, Farm, Social Security, IRAs, Mortgage Interest & more. Forms 1040, 1040A, 1040EZ, 1041, 1065, 1120, 1120-A, 1120-S, 2106, 3903, 6251, 8582, 8598, 8606, 8615 & assoc. sched. Maximize your return for \$49.95

CompuCRAFT P.O. Box 3155 Englewood, CO 80155 (303) 791-2077

WORD PROCESSING

WYSIWYM

What You See Is What You Meant

Abbreviator™ It types for You!

- Types any long word with a few keystrokes
- Works with your word processor or text editor
- Learns Automatically
- Learns phrases too
- Also includes pre-learned words for law, medical, programming, and more \$75.00

Free Second Day Air

BaySoftTM A DIVISION of Pritchard Enterprises, Inc.

800-333-7444 CALL: Orders and Info

MISCELLANEOUS

ACCESSORIES

MOUSEPADS

Co Logo Specialist Grey, Green & Red 91/4" × 8" × 1/4"

12 pads w/logo \$9.50 pads w/logo \$6.90 \$4.70 pads w/logo ENTIRE pad imprintable, GUARANTEED to last

MULTI-COLOR jobs OK SAMPLES w/your company logo \$12.50 COMPUTER EXPRESSIONS

3833 Chestnut Street Philadelphia PA 19104 (800)443-8278

ACCESSORIES



Pack your Mac in seconds!

Cordura case has internal padded pockets for mouse, keyboard and drive. Available in six colors. Extended Keyboard version also available. for a dealer near you call toll free

1-800-548-0053 West Ridge Designs

1236 N.W. Flanders, Portland, OR 97209 CIRCLE 273 ON READER SERVICE CARD



The Best Case Scenario

Airline Check-in Or Local Use The Zero Halliburton Aluminum Mac Case: Strength, Durability, Lightweight, Distinctive Styling. Carries Mac Plus or SE Reg. or Ext. Keyboard, & accessories.

\$299.95 Call: 1-800-327-1829

TLC 7345 Radford, N. Hollywood, CA 91605 In Ca: (818)-503-0982 *Frt. Add.

CIRCLE 274 ON READER SERVICE CARE

MOUSE PAD FOR MAC \$ 9.95 WITH OPTIONAL KEYBOARD & COMMAND KEYS DISPLAYED





D & B DISTRIBUTORS 201-747-6745 BROAD STREET- SHREWSBURY, N.J. 07701 CIRCLE 275 ON READER SERVICE CARD

ACCESSORIES

CHECK YOUR MAC SHIP YOUR MAC

E R 1 P H E R L

S E

C

L

U

WITH TRANSMAC™

PO BOX 9895



BOWLING GREEN, KY 42102 502-782-0600

CIRCLE 276 ON READER SERVICE CARD

Y DUTY MAC HARD CASES



MC & VISA MAC SE \$240 \$195 \$156 \$79 \$250 \$204 \$166 MAC SE, EXT/KB \$88 MAC PLUS \$240 \$195 \$156 \$79 \$250 \$204 \$166 \$88 MAC PLUS EXT/KB

HEAVY DUTY FOAM LINED CASES WITH COMPARTMENTS FOR KEYBOARD & MOUSE

1-800-882-7112 in MI 616-374-7105

WESTERN CONTAINER & CASE Box 125, Woodland, MI 48897

CIRCLE 277 ON READER SERVICE CARD





BEIGE WITH GREY TRIM BREATHABLE! STATIC-FREE!

FOR MAC, II, & PRINTERS CALL TOLL-FREE 1-(800) 826-5761

Contemporary ComputerWear 1320 - 36th Ave San Francisco 94122 CIRCLE 279 ON READER SERVICE CARD

BUSINESS OPPORTUNITIES

$\mathit{Mac}_{Underground}$



THE MAC UNDERGROUND WANTS YOU !!!!
The demand for our on-line electronic magazine for the Mac is more than we can handle! Distribute our magazine, software, & hardware products in the US, Can., U.K., Australia, Far East or Europe

the US, Can, U.K., Austraka, Far East or Europe
We offer:
- EXCLUSIVE TERRITORIES - PROVEN MARKET - SMALL INVESTMENT - BIG RETURNS - TECHNICAL and SALES SUPPORT Have fun and make SS with your Mac! You can launch this busness from your home or existing busness, and expand from there. For further information

CALL
MAC UNDERGROUND, 1180 South 1300 East.
Salt Lake City, Utah 84105 USA
(801)-582-1676

CIRCLE 280 ON READER SERVICE CARD

COMPUTER **INSURANCE**

SAFEWARE INSURES

*Business Computers *Home Computers *Overseas Computers *Leased Computers

*Computers Leased to Others *Computers taken to Shows *Computers Held for Sale *Others' Computers in Your Care Call for complete information!

SAFEWARE, The Insurance Agency Inc. 2929 N. High St.

P.O. Box 02211 Columbus, OH 43202

(800) 848-3469 (NAT) or (614) 262-0559 (OH)

DATA CONVERSION SERVICES



ypesetters, Desk-top publishing systs., Microcomputers.

Convert and translate features of DBMS, spreadsheet and word processing files stored on disks or tapes to or from your Macintoshi

CompuData Translators, Inc. 3325 Wilshire Blvd., Suite 1202 Los Angeles, CA 90010 800/825 8251 213/387 4477

CIRCLE 281 ON READER SERVICE CARD

DATA CONVERSION SERVICES

DATA

Over 2500 formats Quick turnaround

all word processors, mini, micro. mainframe, databases/spreadsheets disk to disk, OCR Scanning



tape to disk Xerox,NBI,DEC Macintosh, IBM Wang, CPT,Lanier,.

National Data Conversion Inst. 5 east 16th street, new york, n.y. 10003

(212) 463-7511

TAPE/DISK CONVERSIONS

Conversion services for your MacIntosh to over 2000 computer systems. Capabilities include converting to or from:

* Magtapes *Mini & Micro Computers

Word Processors 'Typesetters Data can be supplied in over 250 software packages. OCR scanning also available. Pivar Computing Services, Inc. #MU 165 Arlington Heights Rd. Buffalo Grove, IL 60089 (312)459-6010

DESKTOP **PUBLISHING** SERVICES

LASER SET" TYPESETTING

LOW COST output from your Mac/PC files to our Linotronic. Disk or modem. 24 hr. service. 1,270 dpi \$7 per page. Volume discounts. (200 pages text-\$700) Professional type, design and consulting services. Discount Mac hardware and software sales. Authorized Adobe Dealer. LASER SET"

217 Dover Parkway Stewart Manor, NY 11530 (800) 333-2581, (516) 354-2581

DESKTOP **PUBLISHING** SERVICES

category continued on next page...

DESKTOP **PUBLISHING SERVICES**

· MACINTOSH · SLIDE IMAGING

PROFESSIONAL 35mm SLIDES DIRECT FROM YOUR DISK OR VIA MODEM



CIRCLE 284 ON READER SERVICE CARD

OUTPUT

ALL POPULAR PROGRAMS SCANNING OCR MODEM DATA CONVERSION DESIGN POSTSCRIPT ART LIBRARY

TYPE STATION Desktop Publishing Workshop

FOR INFORMATION (213) 939-2620 FAX (213) 931-7959 or Write.

6255 Sunset Bl. Ste. 110-22 L.A. CA. 90028

CIRCLE 285 ON HEADER SERVICE CARD

MacUser Marketplace

Second Color Option Available

LABELS





MAILING LISTS

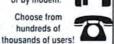
MAILING LIST **Mac Users**



On labels, tapes, Mac diskettes... or by modem. Choose from

hundreds of





Only 5c per name, with no charge for selecting, sorting, media, or delivery,

(408) 688-9200 (voice) (408) 662-2717 (modem)

CIRCLE 287 ON READER SERVICE CARD

SUPPLIES

DISCOVER HOW TO SAVE 30%-50% ON TONER CARTRIDGES.

100% Unconditionally Guaranteed

Laser Cartridge Recharging Compatible wi • Printers IP Series L& I. Apple Caron GMS • Copiers Lacon PC models 10: 14: 20: 8:25

Dealerships & Training Available Send empty Cartridges & Felt Cleaner

original container to: LASERTECH 27403 E. Hwy. 4. Farmington, CA 95230 Phone. (209) 886-5440

118 N. Van Rensselear, Rensselea Phone (219) 866-8233

CIRCLE 288 ON READER SERVICE CARD

SUPPLIES

\$64.50

\$39.50

\$44.50

\$59.50

- Remanufacturing Services Laser cartridges in Black
- Laser cartridges in Colors PC cartridges in Black
- Microfiche cannidges
- Remanufactured cartridge
- Get back your cartridge! Every cartridge pretested! Color test prints available! We support over 200 printers!
- Bulk toner · Quantity Discounts · Jumbo's
- We buy empties in quantities, please call.

DAY AIR Prepaid Return

50 for laser cartridges

100%Satisfaction

24 Hour Turnaround

• Dealerships • Training • Wholesale

800-777-8444

cartridges! for laser printers & Canon PC Copiers BETTER THAN NEW! From \$4495

● 20% MORE TONER DARKER PRINT

• 100% GUARANTEED Willow Products Corp. Willow Ave, Pgh. PA 15234

We buy empties call for brochure 800-426-8196

WILLOW

Boldest It all Darkest adds up to Sharpe Quality Black

oner Cartridges Do business with

technological leaders and save money. Or you can buy them reconditioned from inventory. We also buy used cartridges. Prepayment, Master Card, Visa, and PO's

1-800-BLACK99

Fully Tested & Guaranteed

CIRCLE 291 ON READER SERVICE CARD

SUPPLIES

RIBBONS

1-800-331-6841

1-513-252-1247

Over 350 types

Volume Discounts Available

* Satisfaction Guaranteed * *

BLACK COLORS APPLE IMAGEWRITER 2 75 3 60 APPLE 4-COLOR 8.95 DIABLO HT II M/S **EPSON** LX-80/90 2.25 3.50 **EPSON MX-FX 80** 2.50 3.50 **EPSON MX-FX 100** 3.50 4.50 **IBM PROPRINTER** 3 50 NEC P1. 2. 6 NEC P3. 7 4.95 4.65 **OKIDATA** 82-92 1.50 1.15 **OKIDATA 182-192** 3.50 4.50 PANASONIC KXP 3 50 4 50

DAYTON COMPUTER SUPPLY

a division of Den-Sys Corp. 1220 Wayne Avenue, Dayton, Ohio 45410 EST 1979 TERMS MC, VISA, C O D DISCOVER

CIRCLE 292 ON READER SERVICE CARD

SSELL US YOUR EMPTY



CHLIN COMPUTER CONSULTANTS I LASER CARTRIDGE DIVISION 1970 Plass Drive Suite 1 Ann Asber, Khrijaan 42128-7258 VISA/MC/P D. melleame 111-643-2600 TELEX 91-550 800-63-TOMER FAX 31365)9462

CIRCLE 293 ON READER SERVICE CARD

LASEREDGE Paper/Film

Get high resolution from plain paper laser printers, and color plotters. LASEREDGE * high resolution Paper/Films are waxable for pasteup. The bright white background, denser image, and finer edge of line will allow enhanced capability for 300 dpi to reproduce on camera Call or write for samples today VISA/MC accepted C G GRAPHICS ARTS SUPPLY, INC. 481 Washington Street New York, NY 10013 (212)925-5332, 1(800)342-5858

> MacUser Marketplace . . .

To place your ad call (212) 503-5115

SOON

The Envelope, Please

A look at Microsoft Mail, InBox, QuickMail, and other E-mail packages. Which comes out the winner?

AppleShare versus TOPS

MacUser Labs reports on servers for small-network computing.

Color Presentations

Friendly Persuasion once MORE.

Better Business Bonus

What's available for office management.

PLUS

Bove and Rhodes expound on DTP. John Dvorak on the state of the Mac. Robert Wiggins' Pinstripe Mac. Jim Seymour's Mainstream Mac. Michael Swaine with Card Tricks. Freff's Rhythm 'n' Views. William Zachmann's The Macintosh Analyst. Control Panel by Louise Kohl. Frederic E. Davis' The Editor's Desktop. What's new in DTP, HyperCard, and A/UX. Answers from the Mac Team. Three pages of hints and tips. Over 300 MiniFinders. An expanded Quick Clicks section.

MacUser

FINE PRINT WEASEL

tion price is \$27.00.

Editors absolutely reserve the right to publish none, some, all, or just the parts we managed to complete of the above, owing to the inherent problems that occur when reviewing software, hardware, and the ever-elusive vaponware.



Because you own and use a Macintosh, you need the leading magazine that provides you with side-by-side product comparisons and evaluations conducted by MacUser Labs, the publishing industry's only independent testing lab. PLUS you'll get proven power user tips and techniques, comprehensive coverage of business, professional and educational applications, AND hundreds of product reviews in every issue!

Subscribe to MacUser and begin monthly delivery of the #1 power accessory for your Mac system!

Act today and save over \$35! It's the best power deal you can make!

One year (12 issues) only \$19.97 — SAVE OVER \$15!
Two years (24 issues) only \$35.40 — SAVE OVER \$35!
Savings based on annual single-copy price of \$35.40.

Mail the attached coupon.

MacUse	P.O. Box 5246 Boulder, Color	1 ado 80322-2461
Begin my subscripti	on to MacUser fo	r:
One year (12 iss		
		40. I'm saving 50%!
Mr./Mrs./Ms.		
1011./10115./1015.	Please print	
Company		
Address		
City	State	Zip
☐ Bill me later ☐ Pay	ment enclosed	
Sources based on angual single con-	price of \$35.40. Please allow up	to 60 days for delivery of first issue. Ac

AD INDEX

		RS#	ADVERTISERS	PAGE	RS#	ADVERTISERS	PAGE
Acius	70	23	Hewlett Packard	92-93	58	Passport Designs	95
		97	HJC Software, Inc	50	54	Peachtree Software	38
Advanced Gravis Technology	175	198	Informix Software	112-113	22	Peripheral Land	219
Advanced Matrix Technology	249	88	Insignia	296	24	Peripheral Land	221
Allan Bonadio	22	NA	Intuit	73	10	Personal Computer	
Alpha Systems	101	27	Irwin Magnetic Systems	253		Peripherals Corp	257
Alsoft	72	31	Irwin Magnetic Systems	102-103	60	Personal Training	255
Altsys	187	44	Jasmine Technologies	34	30	Pinnacle Micro	77
Apple	111	45	Jasmine Technologies	198	184	Pro Plus Software	146
Ashton-Tate	48-49	144	Kensington	247	186	Pro Plus Software	146
AutoDesk	86-87	145	Kensington	118-119	62	Programs Plus, Inc	80-83
Avatar	231	25	Kent Marsh Ltd	100	191	QMS	162-163
Avery	218	177			87	Quark	188
		76	Legend Peripheral Products	85	178		
Bedford	209	156	The state of the s		179		
		176			142		
		NA			NA		
					150		
					NA		
					9		
					70.00		
					100		
					0.00		
	The state of the s				77		
	* ***				10.5		
					122.5		
					560		
		4.57			100		
					2000		
					O.G.		
					200		
					30.44		
		- 10			100		
					3.00		
					1.500		
					1000		
					129		
					7.77		
					100		
					1000		
			and the second s				
						Annual table and the second control of the s	
					- W		
					10 C = 1		
					10000		
	TATE OF THE PARTY				18.50	the state of the s	
					No.		
Hewlett Packard		CIT	r aracomp outware		3	A free corporation	
	Adobe Advanced Gravis Technology Advanced Matrix Technology Advanced Matrix Technology Allan Bonadio Alpha Systems Alsoft Altsys Apple Ashton-Tate AutoDesk Avatar Avery BASF Bedford Bright Star Technology Cambridge Marketing Cambridge Morth America Casady-Greene Casady-Greene Casady-Greene Cond Computer Sales Central Point Checkmark Software Claris Claris Compuserve Computer Friends Crate Tech Data Desk Data Translation Data Viz Dayna Communications Daystar Digital Deneba Software Design Science Diskette Connection DPI Dr. Mac Dubl-Click E-Machines Ehman Engineering Engineering Department Everex Systems Fifth Generation GCC Technologies General Parametrics Generic Software Great Plains Hard Drives International Hardware House	Acius 70 Adobe 230 Advanced Gravis Technology 175 Advanced Matrix Technology 249 Allan Bonadio 22 Alpha Systems 101 Alsoft 72 Altsys 187 Apple 111 Ashton-Tate 48-49 AutoDesk 86-87 Avatar 231 Avery 218 BASF 61 Bedford 209 Bright Star Technology 94 Cambridge Marketing 276-277 Cambridge Marketing 276-277 Cambridge North America 271 Casady-Greene 215 CDA Computer Sales 96-97 Central Point 41 Checkmark Software 206 Claris 168-169 Claris 168-169 Claris 154 Computer Friends 37 Computer Friends 262 Crate Tech 267 </td <td>Adobe 230 97 Advanced Gravis Technology 175 198 Advanced Matrix Technology 249 88 Allan Bonadio 22 NA Alpha Systems 101 27 Alsoft 72 31 Altsys 187 44 Apple 111 45 Ashton-Tate 48-49 144 AutoDesk 86-87 145 Avatar 231 25 Avery 218 177 BASF 61 76 Bedford 209 156 Bright Star Technology 94 176 Cambridge Marketing 276-277 NA Cambridge Marketing 276-277 NA Casady-Greene 215 28 CDA Computer Sales 96-97 165 Casady-Greene 215 28 CDA Computer Sales 96-97 165 Central Point 41 13 Checkmark So</td> <td>Adobe 230 97 HJC Software. Inc. Advanced Gravis Technology 175 198 Informix Software Advanced Matrix Technology 249 Allan Bonadio 22 Allan Bonadio 22 NA Intuit Alpha Systems 101 27 Irwin Magnetic Systems Alsoft 72 31 Irwin Magnetic Systems Altsys 187 44 Jasmine Technologies Apple 111 45 Jasmine Technologies Ashton-Tate 48-49 144 Kensington Avatar 231 25 Kent Marsh Ltd. Avery 218 177 Kurta Avery 218 176 Legend Peripheral Products Bedford 209 156 LogiTech Bards 617 Lundeen & Associates Cambridge Marketing 276-277 NA MacConnection Cambridge Marketing 276-277 NA MacConnection Casady-Greene 215 28 <</td> <td> Adobe</td> <td>Adobe 230 97 HJC Software, Inc. 50 54 Advanced Gravis Technology 175 198 Informix Software 112-113 296 24 Advanced Matrix Technology 249 88 Insignia 296 24 Allan Bonadio 22 NA Intuit 73 10 Alpan 101 27 Irwin Magnetic Systems 253 Alsoft 72 21 Irwin Magnetic Systems 102-103 60 Altsys 187 44 Jasmine Technologies 34 30 Apple 111 45 Jasmine Technologies 18 14 Autobesk 68-87 145 Kensington 18-119 62 Avatar 231 75 Kent Marsh Ltd 100 191 Avery 218 77 Kurta 197 4 Autotac 240 5 4 4 Ambridge Marketing 276-277 A MacConnection</td> <td>Adobe 230 97 H.G Software, Inc. 50 54 Peachtree Software Advanced Gravis Technology 175 198 Informix Software 112-113 22 Peripheral Land Advanced Matrix Technology 249 88 Insignia 296 24 Peripheral Land Allan Bonadio 22 NA Intuit 73 10 Peripheral Land Alsoft .72 31 Irwim Magnetic Systems 253 18 Alsoft .72 31 Irwim Magnetic Systems 102-103 00 Personal Training Alstor .72 31 Irwim Magnetic Systems 102-103 00 Personal Training Alstor .72 44 Jasmine Technologies .98 184 Pro Plus Software Astorosca .86 66 71 Kensington 118-119 Pro Plus Software Avata .231 177 Kurta 1191 0MS 191 0MS Avery .218 177</td>	Adobe 230 97 Advanced Gravis Technology 175 198 Advanced Matrix Technology 249 88 Allan Bonadio 22 NA Alpha Systems 101 27 Alsoft 72 31 Altsys 187 44 Apple 111 45 Ashton-Tate 48-49 144 AutoDesk 86-87 145 Avatar 231 25 Avery 218 177 BASF 61 76 Bedford 209 156 Bright Star Technology 94 176 Cambridge Marketing 276-277 NA Cambridge Marketing 276-277 NA Casady-Greene 215 28 CDA Computer Sales 96-97 165 Casady-Greene 215 28 CDA Computer Sales 96-97 165 Central Point 41 13 Checkmark So	Adobe 230 97 HJC Software. Inc. Advanced Gravis Technology 175 198 Informix Software Advanced Matrix Technology 249 Allan Bonadio 22 Allan Bonadio 22 NA Intuit Alpha Systems 101 27 Irwin Magnetic Systems Alsoft 72 31 Irwin Magnetic Systems Altsys 187 44 Jasmine Technologies Apple 111 45 Jasmine Technologies Ashton-Tate 48-49 144 Kensington Avatar 231 25 Kent Marsh Ltd. Avery 218 177 Kurta Avery 218 176 Legend Peripheral Products Bedford 209 156 LogiTech Bards 617 Lundeen & Associates Cambridge Marketing 276-277 NA MacConnection Cambridge Marketing 276-277 NA MacConnection Casady-Greene 215 28 <	Adobe	Adobe 230 97 HJC Software, Inc. 50 54 Advanced Gravis Technology 175 198 Informix Software 112-113 296 24 Advanced Matrix Technology 249 88 Insignia 296 24 Allan Bonadio 22 NA Intuit 73 10 Alpan 101 27 Irwin Magnetic Systems 253 Alsoft 72 21 Irwin Magnetic Systems 102-103 60 Altsys 187 44 Jasmine Technologies 34 30 Apple 111 45 Jasmine Technologies 18 14 Autobesk 68-87 145 Kensington 18-119 62 Avatar 231 75 Kent Marsh Ltd 100 191 Avery 218 77 Kurta 197 4 Autotac 240 5 4 4 Ambridge Marketing 276-277 A MacConnection	Adobe 230 97 H.G Software, Inc. 50 54 Peachtree Software Advanced Gravis Technology 175 198 Informix Software 112-113 22 Peripheral Land Advanced Matrix Technology 249 88 Insignia 296 24 Peripheral Land Allan Bonadio 22 NA Intuit 73 10 Peripheral Land Alsoft .72 31 Irwim Magnetic Systems 253 18 Alsoft .72 31 Irwim Magnetic Systems 102-103 00 Personal Training Alstor .72 31 Irwim Magnetic Systems 102-103 00 Personal Training Alstor .72 44 Jasmine Technologies .98 184 Pro Plus Software Astorosca .86 66 71 Kensington 118-119 Pro Plus Software Avata .231 177 Kurta 1191 0MS 191 0MS Avery .218 177

MacUser READER SERVICE CARD

FREE INFORMATION

ON MACINTOSH PRODUCTS & SERVICES

IT'S AS EASY AS 1, 2, 3



Fill in your name and address and check off your answers to the six research questions. (One card per person, please.) 2

Circle the numbers on the card that correspond to the ads or articles you'd like more information about. (Numbers for advertised products are repeated in the Advertiser Index as well.)

3

The literature will be mailed to you from the advertiser free of charge.

		Void after July 31, 1989
	12 13 14 15 16 17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60 61	62 63 64 65 66 67 68 69 70 71 72 73 74	75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
		25 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
		75 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 25 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
		75 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
		25 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350
		75 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400
		25 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
ALCOHOL SELECTION STREET, STRE	A TOTAL SHOULD BE RESIDENT TO SHOULD SHOW THE PROPERTY OF THE	75 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500
1. Please indicate which of the follow-	4. For which of the following products are	PLEASE PRINT CLEARLY—use only one card per person. MU4892
ing computers you currently use in your company or organization:	you involved in selecting brands/models to be bought by your company or organization?	
(check all that apply)	(Check all that apply)	
a) Mac Plus a) IBM PC	SOFTWARE HARDWARE	Name
□ b) Mac SE □ e) Other □ c) Mac II	□ o) Accounting □ w) Mainframe □ p) Spreadsheets/ □ x) Mini	
	Financial Planners	Phone ()
2. For how many micro computers do you buy products?	☐ q) Project Managers ☐ z) Printers/Plotters	
□ f) 1.4	r) Word Processors 1) Monitors Database Managers 2) Disk/Tape Back-up	Company
□ g) 5-49	☐ t) Graphics ☐ 3) Add-in Boards	
□ h) 50+	□ u) CAD/CAM □ 4) Communications	Title
3. Your primary job function is:	v) Communications	
(check one) i Administrative/General Management	5. Are you involved in the purchasing of	Address
 □ j) MIS/DP, Communications Systems, 	microcomputer equipment at your company? 5) Yes 6) No	
Programming k) Engineering/R&D	6. If so, what function do you serve in the	CityStateZip
□) Finance/Accounting	buying process?	
m) Marketing/Sales	7) Evaluations/Specification	Please send me a one-year subscription to MacUser for \$19.97. I'll save 58%
n) Computer Dealer/VAR	□ 8) Recommendation □ 9) Buyer/Purchaser	off the newsstand price of \$47.40. Annual basic subscription price is \$27.00.
		Void after July 31, 1989
	12 13 14 15 16 17 18 19 20 21 22 23 24	
		75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 85 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
() 사람 경찰 등 장면에 하는 게임이 20개를 하고 있다면 하는 것 같아 () 이 전에 되었다.		75 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200
		25 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
		75 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
Barrier (1975년 - 1975년 1975년 1975년 - 1		25 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 25 374 377 378 370 380 381 381 382 383 384 385 386 387 388 389 380 381 382 383 384 385 386 387 388 389 380
		75 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 25 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
		75 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500
1. Please indicate which of the follow-	4. For which of the following products are	PLEASE PRINT CLEARLY—use only one card per person. MU4891
ing computers you currently use in	you involved in selecting brands/models to be	TELEST FRIE CEARCITUSE Only one care per person.
your company or organization:	bought by your company or organization?	N.
(check all that apply) a o) Mac Plus a d) IBM PC	(Check all that apply) SOFTWARE HARDWARE	Name
☐ b) Moc SE ☐ e) Other	o) Accounting w) Mainframe	OL/
□ c) Mac II	p) Spreodsheets/ x) Mini	Phone ()
2. For how many micro computers	Financial Planners	Company
do you buy products?	☐ r) Word Processors ☐ 1) Monitors	Company
□ g) 5-49	s) Database Managers 2) Disk/Tape Back-up 1) Graphics 2) Add-in Boards	Title
☐ g) 5-49 ☐ h) 50+	☐ 1) Graphics ☐ 3) Add-in Boards ☐ u) CAD/CAM ☐ 4) Communications	
3. Your primary job function is:	□ v) Communications	Address
(check one)	5. Are you involved in the purchasing of	
i) Administrative/General Management iii MIS/DP, Communications Systems,	microcomputer equipment at your company?	CityStateZip
Programming	□ 5) Yes □ 6) No	
k) Engineering/R&D	6. If so, what function do you serve in the	Please send me a one-year subscription to MacUser for \$19.97. I'll save 58%
☐ I) Finance/Accounting ☐ m) Marketing/Sales	buying process? ☐ 7) Evaluations/Specification	off the newsstand price of \$47.40. Annual basic subscription price is \$27.00.
n) Computer Dealer/VAR	8) Recommendation 9) Buyer/Purchaser	
The state of the s	the control of the co	

USE THIS CARD TO OBTAIN FREE INFORMATION ABOUT MACINTOSH PRODUCTS AND SERVICES IN THIS ISSUE

(SEE OTHER SIDE)



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 33854 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE



P.O. Box 40008 Philadelphia, PA 19106-9866 NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES





haddalaaaddaadaladadadaadaadada



BUSINESS REPLY MAIL

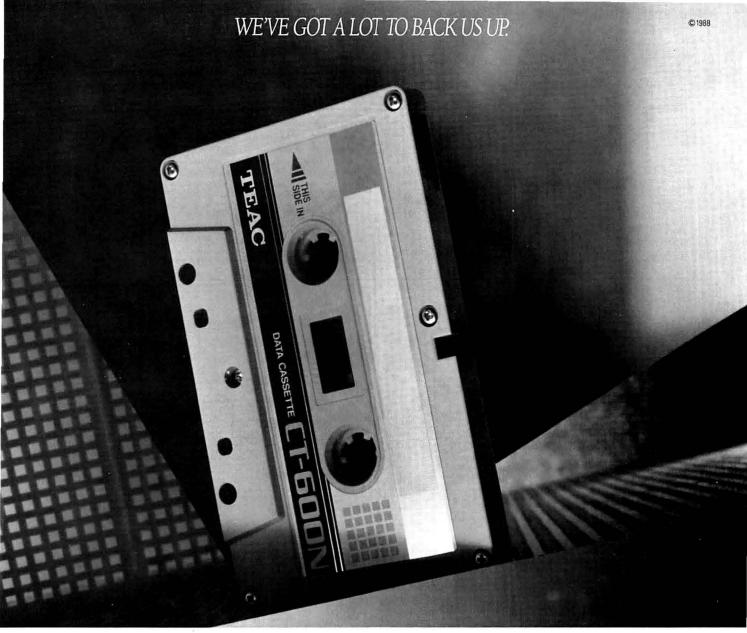
FIRST CLASS PERMIT NO. 33854 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE



P.O. Box 40008 Philadelphia, PA 19106-9866 NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES





WHEN YOU CONSIDER DATA BACK-UP MEDIA FOR YOUR SYSTEM, TAKE A LOOK AT THESE FACTS. THE PHILIPS CASSETTE FORMAT GIVES YOU THE GREATEST CAPACITY AT THE FASTEST TRANSFER RATE. PLUS, THE HIGHEST RELIABILITY AND A COST-EFFECTIVE MEDIUM. ALL AVAILABLE IN A 3½" FORM FACTOR. BECAUSE WE PUT THE TAPE TENSIONING AND GUIDE MECHANISMS INSIDE OUR DRIVE, INSTEAD OF WITHIN THE MEDIA ITSELF, WE'VE ELIMINATED A MAJOR CAUSE OF LOST DATA. OUR SERVO-CONTROLLED DC MOTORS MAINTAIN CONSTANT TAPE TENSION AND SPEED SO OUR ERROR RATES ARE THE ABSOLUTE LOWEST. AND, OUR NEW CT-600N CASSETTE TAPE CAN RELIABLY STORE UP TO 155MB OF DATA IN ONLY 23 MINUTES. WHEN YOU CONSIDER ALL OF THIS, USING ANYTHING ELSE WOULD JUST BE BACKING UP.





Hackensack Mac Shack Presents

You raved about our MouseWash, our Roll-a-Mac, and nonremovable write-only disk drive... **NOW THERE'S:**

Voo Doo Mac

Bothered by someone? No time for conventional revenge? This software from Haiti is just the ticket. Digitize a picture of your "subject," paste it in, and select from the rich palette of tools to produce guaranteed results! The desk accessory version lets you VooDoo while U work!

Raft-Top Mac

Tired of your Mac sinking to the bottom of the pool? Float it *right* in our attractive yellow raft from Titanic Plastics. It comes complete with Maui-Mac sunshade and a nearly waterproof extension cord. A *must* for the poolside computer hacker.

MacFlipper — The Olympic swimmer's training buddy!
Water-Wingz — The hot new spreadsheet that lets you balance your
checkbook and practice your backstroke — at the same time!
Mac Dog Paddle — Introductory swimming for the rest of us!
The Moat — Sequel to Beyond Dark Castle!



MacToast

Make those idle floppy drives do some useful work! How about some perfect toast? Set it from light to dark through the control panel DA, flick the handy lever on the side of the Mac, and whir... whir... TOAST! We have models for one or two floppy drives.

Soon now: adapters and upgrades for Auto-buttering, Quick-Jamming, Real Soon Now, a SCSI version for FAST action and Toast-Net for true multiuser support!



Scratch 'n' Sniff Fonts

With our patented Multi-Waft ribbon or toner cartridge, your writing can really make an impression! Satisfy those with a nose for news! The bigger the font, the more it smells! Font kits come in the following fragrances: New York Subway, Love Canal, L.A. Smog, Boston Harbor, Hong Kong, and Monaco - (better than Chanel No. 5).

Hackensack Mac Shack, 4554 Half Baked Street, Hackysac, NJ 11111 (133) 555 FAUX

NOBODY EVER GOT FIRED FOR RUNNING DOS ON A MAC

SEEING IS BELIEVING

Don't take our word for it.

Visit the nearest computer

of SoftPC. It's a safe approach.

call 800-848-7677.

dealer and ask for a demonstration

To find the dealer closest to you.

Afterall, running MS-DOS* on a Macintosh* opens the door to thousands of software programs only available for the PC.

And there's only one software package that brings true MS-DOS compatibility to a Mac II, IIX, or 68020-accelerated SE.

SoftPC.

SoftPC enables you to run all the PC best-sellers – Lotus* 1-2-3.* WordPerfect,* etc. – on the Mac. And those PC programs developed in-house for special purposes,

You can even use PC and Mac programs at the same time, thanks to SoftPC and Apple's MultiFinder." Copy and paste between PC and Macintosh applications. And when you finish, all information can be stored on the same Macintosh hard disk.

PUT YOURSELF ON THE FAST TRACK

No boards ... No hassles ... SoftPC is easy to install and upgrade. Just like you'd expect from any Macintosh application.





Insignia Solutions Inc., Self-Lucerne Drive Sammyrale, California 9 1086 Jel (2081 522-766) FAX (2081 733-954)

Musik marks and Newsters makemarks of their respective congumes



Please circle 88 on reader service card.

SCRapbook

EDITED BY KRISTI COALE

MR. MACINTOSH GOES TO WASHINGTON

I was struck speechless on hearing that President Bush's transition team was using Mac IIx's to help them along. Apparently, they felt that the Mac offered a kinder, gentler interface than that of Big Blue. (Rumor has it that they wanted the Mac just so they

could run Soft-PC.) But what would happen in the Macintosh industry if Apple stayed in favor with the current administration?

Bush could call upon T/ Maker and Informix to develop the ultimate Republican word processor/spreadsheet: WriteWingz. And to inspire the American people to get involved in his social welfare and economic plans, Bush might look to Microsoft and Symantec for a new blockbuster presentation/programming package: 1,000 PowerPoints of Light-Speed.

Bush is going to have to

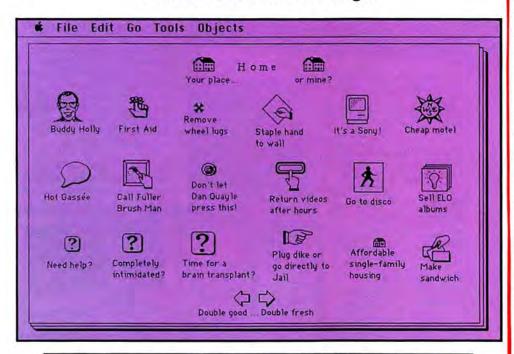
balance the budget, which might lead him to cut some programs. Look for him to cut FullWrite Professional down to HalfWrite. To convince the Washington Press Corps of his sincerity in balancing the budget without raising taxes, Bush should commission Berkeley System Design and Articulate Systems to create a customized voice-recognition product, ReadMyLips.

After outfitting the administration with Mac IIx's, Apple might also throw in a special artificial intelligence tool used for dealing with cabinet members, Congress, and certain vice presidents—the Ignorance Navigator. This could also lead Bush to changing the CIA to the AIA (Anti-Intelli-

gence Agency). On the subject of vice Mr. Quayle presidents, would probably want a turnkey Mac outfitted with every available golf game (though we suspect that he's a PCjr man). Perhaps CE Software will develop an Email package called OuavleMail that not only delivers your messages but also explains them to you slowly, in monosyllabic words. In any case, the veep's spin doctors anticipate that Mr. Quayle will have some problems getting past the opening screens of various programs his father won't always be around to help get him in.

- Jøni Coaler

THERE'S NO PLACE LIKE HOME or: Home on the Strange



At first glace, it looks like a run-of-the-mill Home card. At second glance, we realize that HyperCardophiles James Bradbury and Laura Johnson have been ingesting too much NutraSweet, which always make them Homesick. Inexplicably, it also inspires them to brush up on their analytic geometry, proving once again that Home is where Descartes is.

FROM THE DUBL-CLICK COLLECTION



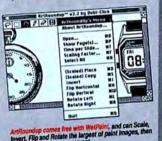


Each WetPaint volume contains hundreds of useful images—drawn in a wide variety of styles. Designed for both home and business use.

WetPaint files can be read by paint programs (like SuperPaints or MacPaints) and layout programs like PageMakers. WetPaint is also available in PictureBase format.

Or copy directly from paint files using our ArtRoundup desk accessory—Free inside every WetPaint volume! ArtRoundup's Slideshow tool makes it easy to scan tons of pictures in minutes.

Each volume of three 800K disks is just \$79.95



MacUser gave World Class Fontal 5 mice (Dec. 1986)

WORLD-CLASS

Each volume is chocked full of what MacUser describes as the "Best collection of ImageWriter fonts available." We've made the Best even

Better by redesigning our faces to achieve even better results on the ImageWriter LQ, Laser-Writer SC, and HP DeskJet. The Originals & The Stylish fonts include everything from practical text and symbols to striking display faces. Th Giants & The Triples are ultra-large sizes ideally suited for highresolution printers.

Each volume of three 800K disks is \$79.95 Includes: BigCaps, & 3 more font utilities.

ce (Sept. 1987) saying "...the WetPaint art is almost is a neccessity." Volumes marked with * were pr ORIGINALS Helsinki HOLLYWOOD # Assuguerque* Hong Kong ARLINGTON H Istanbul C LAS VEGAS Αθηναι athens (Greek BerkeleyA Liverpool Boca Raton & Londons BOISE lukembourg \$0000000 Miles 222 Borders 1.2.3 Manchester CALDHELL Manhattan === Boston 6 MelBOURNE E CHMGLOT & Monterey CANTON 些 **♣** Montreal Canaverai

MULESHOE MOCKBAM FIND TO THE PORT OF NY. Heads Obispo @

CARMEL .

COPENHÄGEN

Cupartino

DAKAR

Horences

T DALLAS DO

DETROIT

FRANKFURT

OREEDBAY Q

Chicago 6

TOPPEL OALEAG Dsaka PARIS A

POCRIELLO CITY CE PRAGUE ROME I Salgon & Y SAN DIEGO # Santa File STANFORD Stock Tholm STUTTGART

O SUNNYVALE Sydney -שו הל-אביב 0 1 2.0 + 4.+ Ismps Tokyo! Venicesso Washington D.C. Madrid

MEDDSTOCK STYLISH

00000000 Abelirue Palermo Ann Arbor Assisi Phoenix

Buenos Aries Burbank Quehe Calcutta San Isla O O CAPE CODE Corinthia Tripoli Denver Vancour Waco, Texas

DraftyCity DRUM WALTHAM East L.A. Waterbury FLINT Zurich Gotham

Henc

Matho's Vineyard

NGALUCKEE

GIAMIS Indianapolis Ultra-large double, triple, hmean and quadruple sizes of the most La Plata

popular fonts from 'Original and 'Stylish. TRIPLES

For use with 24 pin printers (like pin printers (like lmageWriterLQ): Triple sizes from Originals and of standard Mac screen fonts.

Rukland CALAIS CALAIS BOLD Metropolitan

Hoboken 2 IXTAPA IXTAPA BOLD Saigon

VERSAILLES 8 VERSAILLES Bold VERSAILLES Sans VERSAILLES Sans Bold

4 □ Tijuana & El Paso □ ◆ ● ★ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ★ ‡ ‡ † ※ ◆ ※ ◆

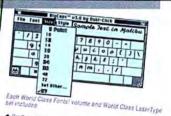
Hancock Park Light 5 Hancock Park Hancock Park Bold

Symbols Galore 6 R ▼ ② 小台 3 (% 丁 Y ↑ 5M A MathWhiz O⇒÷::∠≾⊅⊞©A::∯h√

World Class LaserType looks as good as it prints. Every one of our typefaces comes with no less than 5 legible screen sizes. Finally, type you can read as you type!

No Fooling. World Class Laser-Type alphabets are complete. Not just a-z, but all the diacritics, symbols and ligatures you need. Drawn from scratch; fully kerned. Every time. So, you'll never catch us using a trademark symbol from Times Roman instead of drawing one ourselves.

Each set of two 800K disks is \$79.95 Includes: free Fractions font, BigCaps & 4 more utilities.



BipCaps (desk accessory) replaces Apple's keycaps. With BigCaps you can look at different sizes, styles and lonts; even those not installed in your System file.

Fant Charter (application) prints two kinds of font charts to

Default Font (desk accessory) changes the font most applications default to when first started.

Call or write for our free Catalog

1989 Dubl-Click Software, Inc. ◆ 9316 Deering Avenue ◆ Chatsworth, CA 91311 ◆ (818) 700-9525 Pacific Std. Time

THE SCRAP FOLDER

Did vou ever want to know something about Macintosh computing but were afraid to ask? The Scrapbook Answer Team (James Finn and John J. Anderson) will try their darnedest to help you. They don't know everything, but they can at least provide smart answers for your innocent questions. Need some advice? Just send us your problem, and we'll throw it on our desks along with the rest of the debris. Your lucky day will be when we finally find your letter. If we answer it in print, you'll get a bill for our usual consulting fee of \$25. Good luck!

I am writing a C program to test disk drives and have run into some problems. The program initially is supposed to create a random graph structure and map nodes to arbitrary disk addresses, compensating for the interleave factor used by the disk. Then it performs a depth-first traversal of the structure, keeping track of seek, latency, and data transfer times. Unfortunately, the program has started generating a peculiar structure, which as far as I can tell is similar to a Möbius strip. The drive head actually crashes through the disk media, no longer aware that the media has two sides. I've just destroyed my parents' hard disk and floppy drives. Please help before they find out and kill me. A copy of the source code is enclosed.

CHRIS SASPINOSO NEWARK, N.J.

This is a common mistake among amateur programmers. You've accidentally embedded your structure in a higher dimensional space. But the fix is simple. Look in Inside Macintosh, Volume V, where you will find a discussion of the International Utilities Package. This contains the Intergalactic Dimensional Sorter, accessed via the Toolbox trap IG-DimSort. As for your folks, the same volume of Inside Mac describes the Color QuickDraw routine called SedateHuman, which draws a vibrating color pattern that is synchronized with the brain's alpha rhythms. This rapidly brings the human subject in this instance, parents into a state of artificial calm.

I have several SCSI devices, including a scanner, hard drive, CD-ROM player, and video digitizer, all daisy-chained to my Mac SE. Recently, the Mac has become quite confused and has tried to write to the CD player and scan images from my hard disk! I checked all the devices. They have distinct SCSI addresses, and I think everything is set up correctly, with a terminator on the last device. Please help me. Could the problem be with my cabling? BILL ATWOOD

BURBANK, CALIF.

Sure, always glad to help. No, the problem is not with your cabling.

I've owned a Macintosh since its introduction in 1984 and have devoted nearly all my waking hours to the machine. I can recite the Toolbox code verbatim and have spent the last six months coding my own system software. I spend over \$700 a month with on-line services. and that's not including the actual phone bill.

My problem is this: My personal life seems to be suffering. The only place I ever even talk to anybody is at user group meetings, and this girl I had been seeing a little bit dropped me for the guy who bags groceries at the supermarket. I don't seem to want to sleep in bed anymore, preferring rather to nap sporadically in front of the screen. I know I'm not eating right, and the apartment looks pretty dreadful.

Lately everything seems meaningless. There's got to be more to life than this. I'm beginning to wonder if this whole computer thing has really been a terrible mistake. Can you help me? BILL BATES

MONTPELIER, VT.

Sounds to us as if you really need more RAM.

Is it true that Steve Jobs ate nothing but carrots for seven weeks when he was building the Lisa?

DENISE CHARTREUSO TRUTH OR CONSEQUENCES, N.M.

Yes. In fact, carotene is essential for eyesight, which comes in handy when you're working on such things as circuit boards, disk drives, and monochrome displays. A diet consisting of Ho-Hos, Twinkies, and Jolt Cola has proven to cause frequent system crashes.

By the way, did you know that Jobs, as a result of this diet, had originally intended to make the color of the Lisa case carrot?

No fooling! Glad to the inside get -DCscoop.

Nishtii laduvuussiinin a C

Anytime.

DO YOU KNOW ME?



Freddie the 13th? Nightmare on Apple Street? A gold Krueger-rand?

The proven resource for Macintosh systems & support.

1 MB SIMM's



1MB SIMM's Lowest Price Starting under \$200Call

MAGIC DRIVE INTERNAL

300 mb (For Mac II)\$1995
150 mb (For Mac II)\$1395
91 megabyte (For Mac II, SE)\$995
80 megabyte (For Mac II, SE)\$749
60 megabyte (For Mac II, SE)\$599
46 megabyte (For Mac II, SE)\$599
40 megabyte (For Mac II, SE)\$559
30 megabyte (For Mac II, SE)\$475
External drives available

VIDEO BOARDS

Raster Ops

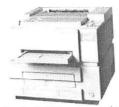
Color Board 104......\$3299
24-bit True Color, graphics board
Color Board 108......\$1149
8-bit, high-res graphics board
19" Trinitron Monitor ...\$2999
Finest monitor available today!
Cornerstone FPD......\$795
Full page display!
19" B/W for Mac II.....\$1499

MAGIC NET



100% Flash Box, Local Talk, Phone Net compatible SALE19.95

3 MB LASER PRINTER



MAGIC MODEM 2400



100% Hayes Compatible 2400 Baud 2-Year Warranty.......\$129

SOFTWARE

We carry over 2000 software products for your Mac, so please call and ask for items not listed in this advertisement.

Adobe Fonts	Save 33%
Aldus Freehand	299.00
Big Thesaurus	69.00
Canvas 2.0	169.00
FontSizer	79.00
Fox Base +	205.00
Fox Base Multiuser	call
Hyper DA	41.00
Illustrator '88	325.00
LightSPEED C	95.00
MacDraw II	299.00
MacInTax	69.00
Mac Link +	139.00
Mac Recorder	139.00
Managing Your Money	129.00
MiniCAD +	519.00
MS Works 2.0	199.00
PageMaker 3.0	395.00
Persuasion	355.00
Quark XPress 2.0	499.00
Quark Style	199.00
Quicken	35.00
QuickKeys	65.00
Suitcase II	48.00
Sum	59.00
SuperPaint 2.0	129.00
TOPS	119.00
Virex	68.00
WingZ	269.00
WriteNow 2.0	139.00

HARDWARE

External Drives

External Drives	
Magic 30meg	599.00
Magic 60meg	699.00
20meg SCSI	475.00 999.00
45meg Removable	
Cartridges, each	100.00
600meg Read/Write	
Optical Drive	3995.00
Macintosh Plus	call
Mac SE, II	call
Mac SE/30, IIx	call call
Apple Scanner	
FAX Modem	call
Abaton Interfax	365.00
Grappler LQ	95.00
PerfectTek PC Cards for +, SE	499
2 Meg Upgrade (Mac II)	325.00
A+ Mouse	63.00
Lightning Scan	call
Kraft Quick SE, +	35.00
TOPS Flash Box	129.00
Universal PrinterStand	12.00
Cutting Edge	
105 Keyboard w/Quick Keys	115/145
800 K Drive	179.00
Tape Backup 60mb	699.00
Mac Recorder	139.00
MIDI Interface	87.50
Turbomouse 3.0	119.00
Seikosha Printer	234.00
Write Move Printer	call

1.29

Disks:	DS	S
Sony (10)	19.00	12.90
Sony Bulk (50)	1.44	1.2
MacDisk Bulk (50)	.99	.98
KAO Bulk (50)	1.35	1.3
KAO Boxed (10)	15.50	12.00
Black Ribbons		3.00
Colored Ribbons		3.50
ImageWriter LQ Ribb	ons	15.00
ImageWriter LQ 4-Co	olor	25.00
Mac Plus, SE Bag	59.00	0/69.00
Teak Disk Box 50/100	150 16	/25/3:
Disk File/30/80	7.00	/12.00
MacBible Version II		18.00
MacGuard Surge		25.00

ACCESSORIES

BOARDS/LIPGRADES

III S
4995.00
5250.00
call
599.00
1099.00
699.00
289.00
ors call
69.00
99.00
249.00
299.00
499.00
299.00
call

ORDERING

Orders ONLY:	1-800-622-3475
Information:	1-512-343-9441
FAX:	1-512-343-6141
Tech:	1-512-343-6133

Hours: 7am - 10pm, M-F, 10am - 6pm Sat-Sun CDT

Minimum Order: \$40.00 Payment:



American Express, Visa, Discover, Master-Card (No surcharge), Checks, C.O.D., and Company & Institution PO's. Net 10.

Tax: Texas residents only, add 8% sales tax

Prices and items are subject to change and availability.

Terms: You are not charged until your order is shipped. Returns may be subject to a restocking fee.

Shipping: Minimum \$4.50 — Airborne, UPS Next Day & 2nd Day Air, US Mail.

FREE UPS Ground on pre-paid orders under 40 lbs.

MacProducts USA carries over 3500 products for the Mac, so call for products not listed. Call for a free catalog.

188



8303 Mopac Expressway • Suite 218 • Austin, Texas 78759 • USA

1-800-MAC-DISK

NO BUSINESS LIKE KNOW BUSINESS

Sifting through a pile of press releases can really confuse a person, as Mac-User's James Finn discovered. With so many product announcements (even for unreleased products), Mr. Finn had a little difficulty distinguishing between fact and fiction when he came upon this one. Myth or reality? You make the call.

Every businessman wants to succeed, but success is hard in this cold world. Everyone's hustling, everyone's your competitor, and you're just not good enough, are you? But with

MacBusinessMan, an extraordinary new software package, you can get that competitive edge that makes all the difference.

The joint effort of Apple's Artificial Intelligence and Multimedia groups, MacBusinessMan employs software technology previously seen only in the research laboratory. It synthesizes techniques from expert systems, neural networks, and 3-D animation into the ultimate "all business" program for the Mac. And of course, it's HyperCard compatible.

MacBusinessMan can make all your decisions for you and can even run a small business without human intervention. It manages your projects, schedules, accounting, and phone calls. It is the perfect advisor and is programmed to reassure you when you feel all alone in the rat-race business world. The manual quotes extensively from Tom Waits: "We're going to give you the business" and "It's the only product you will ever need.'

At \$2,995, MacBusinessMan represents a radical departure for Apple "we're not in the software business anymore" Computer. Speaking under condition of anonymity, Randy Battat, Apple's VP of Misinformation, said: "We made that mistake with HyperCard. Why should we give this away when we can sell it for three grand? Steve Jobs, who is bundling a good deal of free software with his NeXT machine, has it backwards, man; NeXT isn't laughing all the way to the bank. Hey, they're struggling. Now let them match this sucker. MacBusinessMan just cleaned their clock."

MacBusinessMan will revolutionize business computing, and there is talk that it may single-handedly revitalize the U.S. economy. The National Security Agency has added MacBusinessMan to its list of "sensitive" software, so it can be sold abroad only with CIA approval. Apple has already filed suit against the NSA, arguing that making a profit is never contrary to the national interest.

METRO IMAGEBASE ELECTRONIC ART.

Professional-quality, high-resolution electronic art for serious desktop publishers.

- Professional-quality art created by leading illustrators.
- More than 4 times sharper than typical "clip art".
- One large image per file for easy manipulation.
- 100 usefully grouped images per package.
- Guaranteed satisfaction or your money back.

100 images per package 300 dpi resolution





Works with: PageMaker, Ready, Set, Go!, Ventura Publisher, XPress, Cricket Paint and WordPerfect 5.0.

File Format: All Macintosh and MS-DOS PageMaker disks use .TIF. Ventura Publisher disks use .PCX and WordPerfect 5.0 disks use .IMG.

System Requirements:

Computer: Macintosh 512E, Plus, SE, II and IBM sys-tems configured for desktop publishing.

A hard-drive is strongly Storage: recommended Laser Printer

Printer:

For information calls 1-800-525-1552, Fax: (818) 881-4557 (Outside U.S.: (818) 881-4997). Metro ImageBase, Inc., 18623 Ventura Blvd., Suite 210, Tarzana, CA 91356



NewsletterMaker Pictures that really make headlines. Seasonal, edu-

cational, holiday and sports. Images to illustrate most any occasion

Computers & Technology



lmages of people comput ing, monitors and keyboards, satellites and astronauts, research laboratories and more.

Borders & Boxes Decorative signs, symbols, corners, bursts, borders and more. For framing any document.



Business Graphics Serious and not so serious

images to work with Offices and office equip., managers and meetings and financial symbols.



ReportMaker Political, social, industrial, agricultural and

financial symbols. Images to give your reports more impact.



A generous serving of images. From soup to nuts, waiters and chefs. banquets and barbecues, borders and more.

Other available packages:

The Four Seasons Art Deco

People Team Sports

Weekend Sports Nine to Five

Exercise & Fitness

Money-Back Guarantee

If you are not completely satisfied with the selection of images, return the complete package within 10 days for a full refund.

To order call toll-free: $1 ext{-}800 ext{-}525$



Federal Express® overnight delivery (available on request)





Metro ImageBase, Inc.

18623 Ventura Blvd. Suite 210, Tarzana, CA 91356 1-800-525-1552, Fax: (818) 881-4557



his will be my last column for MacUser. I've been here since the inception of the magazine, and I've enjoyed every minute of working here, but it's obvious that my time has come. I know a lot of you have both enjoyed and hated some of the words that I've put to paper over the past three or four years on this back page. I hope that I've managed to cajole you, entertain you, and even inform you once in a while.

I was chosen for this column by the original publisher, Felix "Navidad" Dennis — one of the smartest guys I've ever met. Felix immediately noticed that the Mac community was be-

End of an Error

sieged by glad-handers and gung-ho enthusiasts who needed an occasional reminder that both the world and the Macintosh weren't perfect. He and his original editor, Neil Shapiro, dreamed up the idea of the anti-editor and figured I'd be the guy for the job since I'd been known in the community as a perpetual complainer.

I immediately endeared myself to this crowd with a classic Dvorak column entitled "The Slob Theory of Programming," whereby I figured out that 68000 programmers were all a bunch of hopeless and lazy slobs. This notion evolved from tons of empirical data, some logic, and the discovery that more Mac programmers smoke cigarettes and eat cheap pizza than do IBM programmers.

Off to a roaring start, I may have peaked a year later with a column called "What's (Still) Wrong with the Mac." A gem of modern journalism, this column was actually the suggestion of then-editor Steve Bobker, who bumped a more polished piece I had written because he wanted something exciting for a Mac Expo giveaway. This article resulted in a deluge of hate mail and ratings higher than ever. Since then, I've been coasting.

Let's face it, my recent columns don't have the zip of the old ones. Last month the best I could do was complain about other columnists. The month before that I didn't even write about the Mac, but about Steve Jobs' NeXT computer. While the NeXT article was interesting, it proved that there are more interesting things to do than complain about the Mac month after month. The previous month I wrote about Taiwan. And last December I wrote about cow cud. Do you detect a pattern here? The more I look at this column, the more I realize that it's serving no useful purpose.

More importantly, I've lost my edge because I've grown to

like the Macintosh. Especially the free Mac II loaner that I have courtesy of Apple. These Apple people are so nice to you when you mention their name. Apple, Apple, Apple, Apple, Those four mentions should get me a new laser printer on loan.

Meanwhile, I use the Mac more and more and like it more and more. I like the interface. I like the mouse. I like the PostScript system. I like WriteNow 2.0. I like Excel. I like Crystal Quest.

Needless to say, this is not the right attitude for an anti-editor, Oh, I suppose I could complain about a few things. Like how I could never really afford the system I'm using. I still find the Apple keyboard a bit mushy, And half the time the printer doesn't initialize properly, but so what? These are all small prices to pay for such a great machine. Thank the stars that there is an Apple Computer. Who'd want to be stuck with IBM forever?

So, as a last gesture, I want to thank the people who have encouraged and nurtured this column: Felix Dennis, Neil Shapiro, Steve Bobker, Louise Kohl, Fred Davis, Marty Mazner, Bill Lohse, Ken Koppel, and Bill Ziff. I also want to thank my artist Bob Zimmerman, who has tried his best to provide this column with interesting spot art. He peaked when the column peaked, I guess. I still love the guy, though.

Let me also send some thanks to the 24 readers from whom I've received compliments over these past few years. I have your letters encased in my permanent collection of complimentary mail. Not bad when you consider that I've only been writing about this industry for a decade,

What galled me the most was the hate mail. Hate mail! I can only take so much complaining. Mac users are thin-skinned and hate to hear even a hint that the purchase of their precious machines wasn't a smart decision. Heaven forbid someone should point out that \$10,000 is a lot to pay for a machine to run a simple spreadsheet. No matter. I can't keep harping on the obvious. The spouse of every Mac user has made this same complaint, I'm sure. Nobody needs to hear it from me.

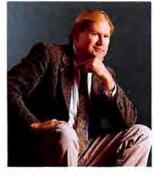
So what am I going to do? I'll continue to write for PC Magazine and PC Computing.

That should keep me busy enough. Maybe I'll do an occasional article for *MacUser* if things go askew. Perhaps I'll grind out a good book. Heck, I might even design some needed software.

Make no mistake about this, though. I'm not on a sabbatical.

I'm gone for good. You complainers won't have Dvorak to kick around any more. It was fun while it lasted. I bid you a pleasant adieu. Goodbye. Good luck to you all. So long. See you later. I'm outta here. Exit stage left. Put the pedal to the metal. Going, going, gone! Adios. Au revoir. Not if I see you first. So long, suckers! Time to am-scray. Bon voyage. Farewell. I'm history.

Oh, and one more thing: April Fool's.



By John C. Dvorak

LLUSTRATION ROBERT ZIMMERMAN

MANAGING YOUR MONEY... NO OTHER PROGRAM DOES MORE FOR <u>YOUR</u> MONEY.



"...Managing Your Money
is the Mercedes of
personal finance programs."

- Macweek, 9/13/88

WEC18

Software that makes your personal computer worth having.

© 1988 • MECA • 355 Riverside Avenue • Westport, CT 06880 For Macintosh Plus, SE, II, 512KE. Two disk drives (one being at least 800K).

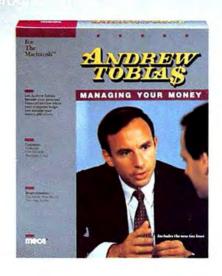
Please circle 47 on reader service card.

Managing Your Money® is the most comprehensive, easy to use money management program available on the Macintosh™! Fully integrated and updated for the new tax laws, MYM Mac is everything you'll ever need to master your personal or small business finances:

- CHECK WRITING AND BUDGETING
- TAX PLANNING
- INSURANCE PLANNING
- FINANCIAL PLANNING
- PORTFOLIO MANAGER
- NET WORTH

And there's more:

- POWERFUL SMALL BUSINESS FEATURES
- EXTENSIVE GRAPHICS & REPORTING
- EXPORTS TO EXCEL® AND MACINTAX®
- NOT COPY PROTECTED

Let Andrew Tobias become your financial advisor and find out why year after year, Managing Your Money is rated the control of




SYMANTEC UTILITIES PROTECTS SMART PEOPLE AGAINST HARD DISK CRASHES THE SAME WAY AIR BAGS PROTECT DUMMIES.

"SUM, or to be more precise, Symantec Utilities for Macintosh, is the slickest and most important set of utilities you can get for your Mac. To have a hard disk and not have SUM is sheer folly."

Steven Bobker, Chief Scientist, MacUser Magazine, 9/88, 5 Mice, Highest Possible Rating

Strong language. But well founded. Because in addition to six other indispensable utilities, SUM features Guardian, the ultimate software for protecting your

SEVEN INDISPENSABLE HARD DISK UTILITIES:

Guardian—protects and restores hard disk data and deleted files. Disk Clinic™—easy-to-use troubleshooting interface. Restores hard disk data in case you have a crash before you can install Guardian. Virus Protection—protects systems against "viruses." HD TuneUp —optimizes hard disks. Symantec Tools—views and edits data and resource forks of a file or volume in HEX or ASCII. QuickCopy —makes fast floppy copies. HD Partition—separates hard disks into separate volumes which can be encrypted.

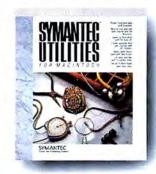
Mac's hard disk before a crash. Like an air bag, Guardian stays out of sight, loading automatically every time you turn on your Mac. It protects invisibly by updating a "map" of your hard disk data. So that, in a crash, your data is safe. Because Guardian uses the "map" to locate it and recover it. In minutes.

Smart Mac users who want complete, yet effortless protection for their hard disk data should follow Steven Bobker's advice and "Get SUM." Today.

See your dealer or order today: (800) 228-4122 Ext. 675F

Bundled exclusively on all Jasmine Hard Disk Drives.





SYMANTEC. Symantec Corporation, 10201 Torre Avenue, Cupertino, CA 95014. 408/253-9600.

MacZap owners call 408/446-9994 for a low cost upgrade. IID TuneUp. QuickCops, and Disk Clinic are all trademarks of Symantec Corporation. O

m. Other products are trademarks of their respective holders. © 1988 Symantec Corporation